JANUARY 1961

THE MAGAZINE OF APPLIED TECHNOLOGY FOR MEN WHO MANAGE

Relative stability of frozen foods charted..... 41
Fast automatic packaging in rigid plastic trays..... 39
Unresolved Additive problems—Dr. Oser reviews..... 32

FOOD PROCESSING®

6th Annual Focus on Technical Problems

TOP FOOD EXECUTIVES PROBE

STATE OF THE INDUSTRY

- ***Capital Expenditures*** . . . . . *changes in earlier plans?*
- ***Production Problems*** . . . . . *how to meet them?*
- ***Future Developments*** . . . . . *what's in the offing?*

Page 27

$1.00 the copy
A PUTMAN PUBLICATION
"Executive Magazines for Industry"

THE MAGIC TOUCH OF LACTOSE makes food flavors sparkle with life!

Food products... whether bulk or packaged... take on bonus flavor with Lactose. This low sweet, sustained energy sugar of milk also extends shelf life, preserves aromas and boosts nutritional values. Only Western Condensing Company produces Edible Lactose in the full range of controlled mesh sizes required by the food field. Strict chemical and bacteriological specifications, rigid quality control and years of processing experience assure highest quality. For complete details, get in touch with Western, world's largest producer of Lactose, pure milk sugar. Write, wire or phone today.

Western Condensing Company • Appleton, Wisconsin

Division of Foremost Dairies, Inc.

Foremost lactose

new!

Fact-filled folder about Lactose and its many valuable uses.

Send for yours TODAY!

WESTERN CONDENSING COMPANY • Appleton, Wis.
Please send me free Lactose Technical Bulletin L-1.
Name_____
Company_____ Title_____
Address_____
City_____ Zone____ State_____

7271 on Reader Service Slip.

that's interesting

Look Ma, no eyes!

Potatoes can be stored at 55 F for as long as a year without sprouting, through use of the chemical commonly known as CIPC, according to experimental findings of the USDA at its Beltsville, Md., facility.

When properly used, CIPC prevents deterioration of potato appearance, and does not affect taste. The chemical has been accepted for registration by the USDA, and a tolerance for it to cover residues left by its commercial use was established recently by FDA.

How about ducks?

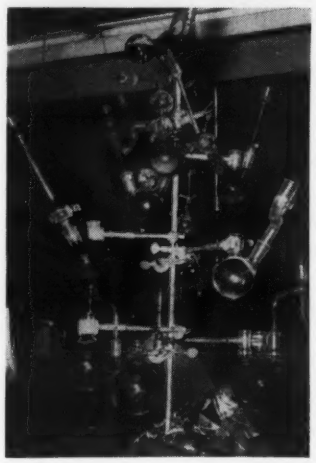
Outside of show business, most eggs (hen variety) are laid early in the morning, and 8 out of every 10 before noon.

Specifically, a Michigan State University study showed that 39 per cent were laid before 8 AM, 31 per cent between 8 and 11 AM, 18 per cent between 11 AM and 1 PM and 12 per cent between 1 and 4 PM. (USDA Farm Paper Letter, Oct. 31, 1960)

that's interesting

Essence of the season

Appropriately enough, New York essential oil and flavor house Dodge & Olcott created its own unique Christmas tree



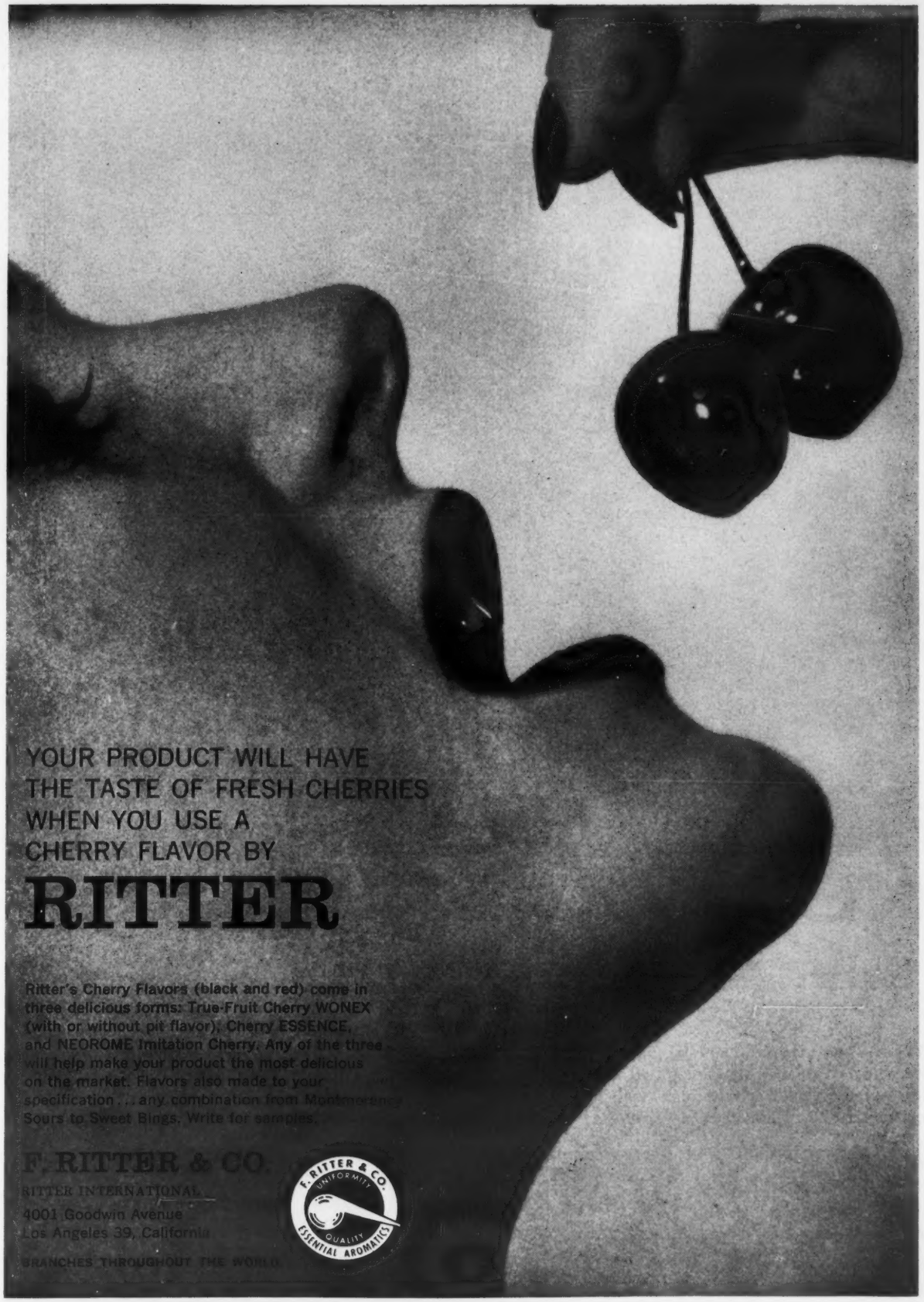
of laboratory glassware, distilling flasks and connections — filled with different solutions of red, green and orange Certified Food Coloring.

Packaging? What's that?

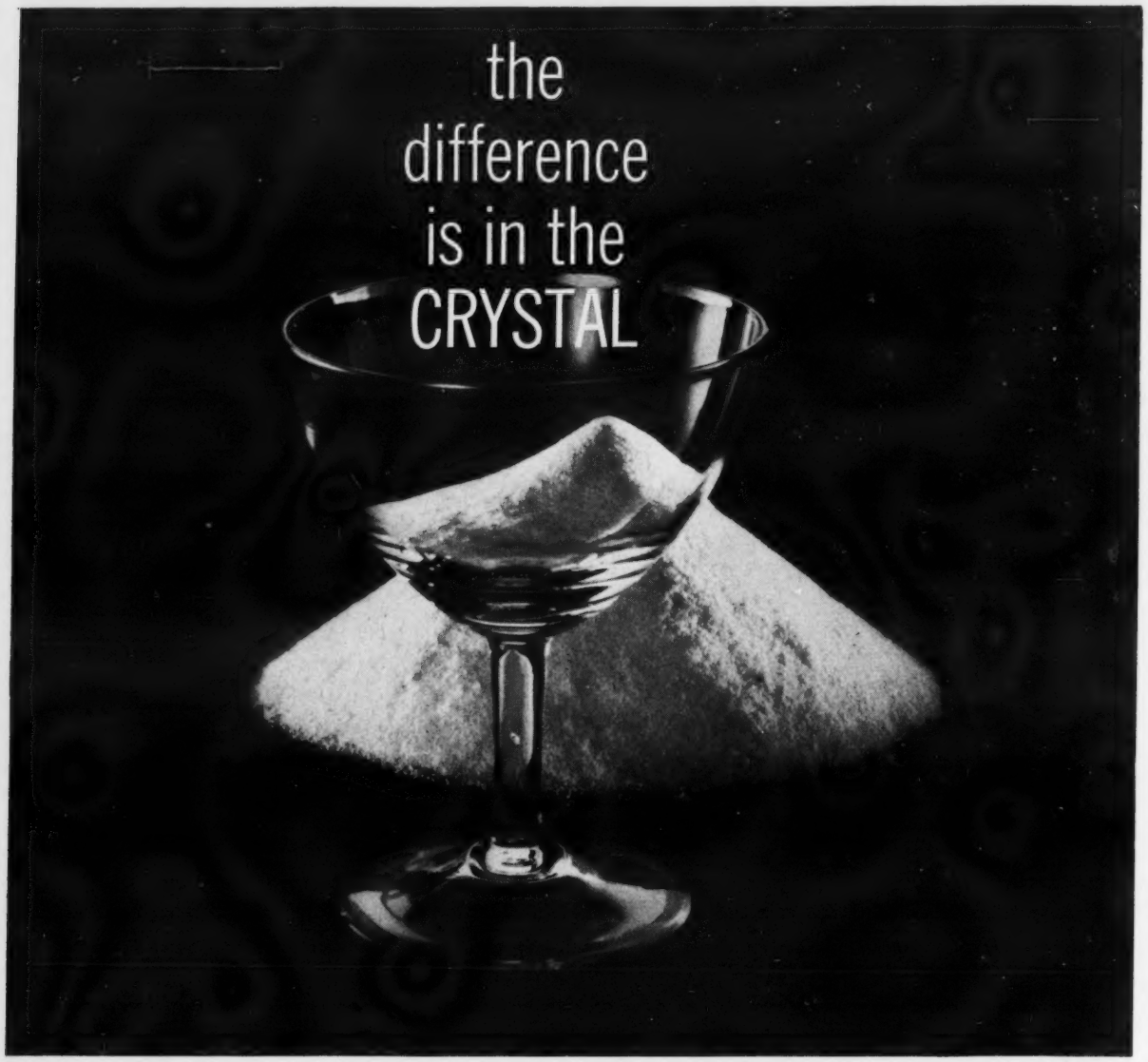
Around the turn of the century, an insignificant amount of food and beverages was packed in small containers. Pickles, for example, didn't come in jars. Instead, the grocer dipped his hand into the barrel. One benefit — the only "litter problem" then concerned the family cat.

Color line

Commenting on the recent Pure Food Centenary celebrations in England — commemorating the Adulteration of Foods Act of 1860 — the November issue of FOOD MANUFACTURE published in Great Britain, notes that while the political trend is, ideally at least, toward a world community of nations, "it is . . . not in accord with universal harmony that of 82 food colours permitted in 22 countries, only one colour should be permitted in all of them."


YOUR PRODUCT WILL HAVE
THE TASTE OF FRESH CHERRIES
WHEN YOU USE A
CHERRY FLAVOR BY
RITTER
Ritter's Cherry Flavors (black and red) come in three delicious forms: True-Fruit Cherry WONEX (with or without pit flavor), Cherry ESSENCE, and NEOROME Imitation Cherry. Any of the three will help make your product the most delicious on the market. Flavors also made to your specification . . . any combination from Montmorency Sours to Sweet Bings. Write for samples.
F. RITTER & CO.
RITTER INTERNATIONAL
4001 Goodwin Avenue
Los Angeles 39, California
BRANCHES THROUGHOUT THE WORLD
F. RITTER & CO.
UNIFORMITY
QUALITY
ESSENTIAL AROMATICS

7272 on Reader Service Slip.



NEW DIVERSOL® CX®

with ARODYNE* Patent Pending

- bactericide
- disinfectant
- cleaner

For the first time in chemical history Diversey research has produced a completely soluble crystalline sodium hypochlorite with new wetting action incorporated as a part of the crystal!

New DIVERSOL CX with ARODYNE offers faster penetration—overall a more effective action. This powerful bactericide-disinfectant gives superior performance in terms of speed and effectiveness.

Ask your local D-Man to demonstrate DIVERSOL CX with ARODYNE, or write for full details to the Diversey Corporation, 1820 West Roscoe Street, Chicago 13, Illinois

**The Diversey Corporation's trade name for an active ingredient*

DIVERSEY.®

Another DIVERSEY First . . . through Research

7273 on Reader Service Slip.

Recession or not our industry's

Capital expenditures continue as planned

Taking stock of the technological factors in appraising the future course of events has come to be a distinctive feature of our January issue.

This time it is our privilege to bring you the thinking of industry's top executives concerned with manufacturing and production . . . as they focus their attention on technical problems and the work underway to solve them.

One outstanding observation is that while most other sectors of our economy are experiencing various degrees of recession, the food industry continues to modernize and improve its operations at a lively tempo.

Capital expenditures accordingly are being continued as planned. As a matter of fact, some increases are being made.

This year, instead of separately presenting page after page of individual statements of each top executive participating in the roundup, we worked up a condensed digest of their statements. In this way we hope to facilitate your obtaining an overall view of the *state of the industry*.

Howard P. Meier

EDITOR

THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE

JANUARY 1961
VOL. 22 NO. 1

FOOD PROCESSING

CIRCULATION OVER 39,000

EDITORIAL SECTIONS

Ingredients 47
Sanitation & Maintenance ... 58
Processing, Instrumentation and Control 70
Material Handling and Transportation 84
Packaging 96

DEPARTMENTS

Conventions & Exhibits 8
Products & Packages 10
Association News 12
Food Regulations 13
Plants, Companies and Personalities 24
New Technical Literature 100

SPECIAL READER SERVICE

• Advertisers Index 103

• When you want more information, see Reader Service Slip ..... Opp. 104

• If you want to subscribe to this magazine, see reader qualification form ..... Opp. 105

Highlights

27 Leading food executives view the state of the industry

The following companies participated in this FOOD PROCESSING survey. Archer-Daniels-Midland Co.; Borden Foods Co.; Canada Dry Corp.; Falstaff Brewing Corp.; Gerber Products Co.; P. Ballantine & Sons; Campbell Soup Co.; Curtiss Candy Co.; Green Giant Co.; Foremost Dairies, Inc.; Oscar Mayer & Co.; Pet Milk Co.; Seabrook Farms Co.; Stephen F. Whitman and Son, Inc.; National Biscuit Co.; Salada-Shirriff-Horsey; Swift & Co.; Wilson & Co., Inc.

32 Unresolved additive problems

A report on two papers presented at the annual joint conference of the Food Law Institute and the FDA — Dr. B. L. Oser outlines the problems and progress that has been made since the Additives Law went into effect last March. Dr. Richard S. Gordon, of the Manufacturing Chemists Association Committee on Food Additives, and Joseph D. Becker, Assistant to the Director of Allied Chemical Corporation's Legal Department, suggest amending the Food Additives Law

39 High-speed automatic packaging in rigid plastic trays

California Date Growers Association is first food packager to convert to high-visibility polystyrene plastic tray cold-formed at high speed on automatic equipment

43 Relative stabilities of frozen food

How frozen foods compare with each other in resisting changes — a report, with a master chart based on work of USDA scientists at Western Utilization Research and Development Laboratory

Also Featured

37 Continuous production of whipped butter in conventional print form

47 Confectionery flakes as a filler ingredient offer many advantages to bakers, confectioners

58 Epoxy coating on work table demonstrates good resistance to wear

63 Squeege development to clean larger areas in less time

70 Invisible beam cuts through any atmosphere to control numerous variables

78 Mechanical tomato trimmer cuts trimming costs by 25%

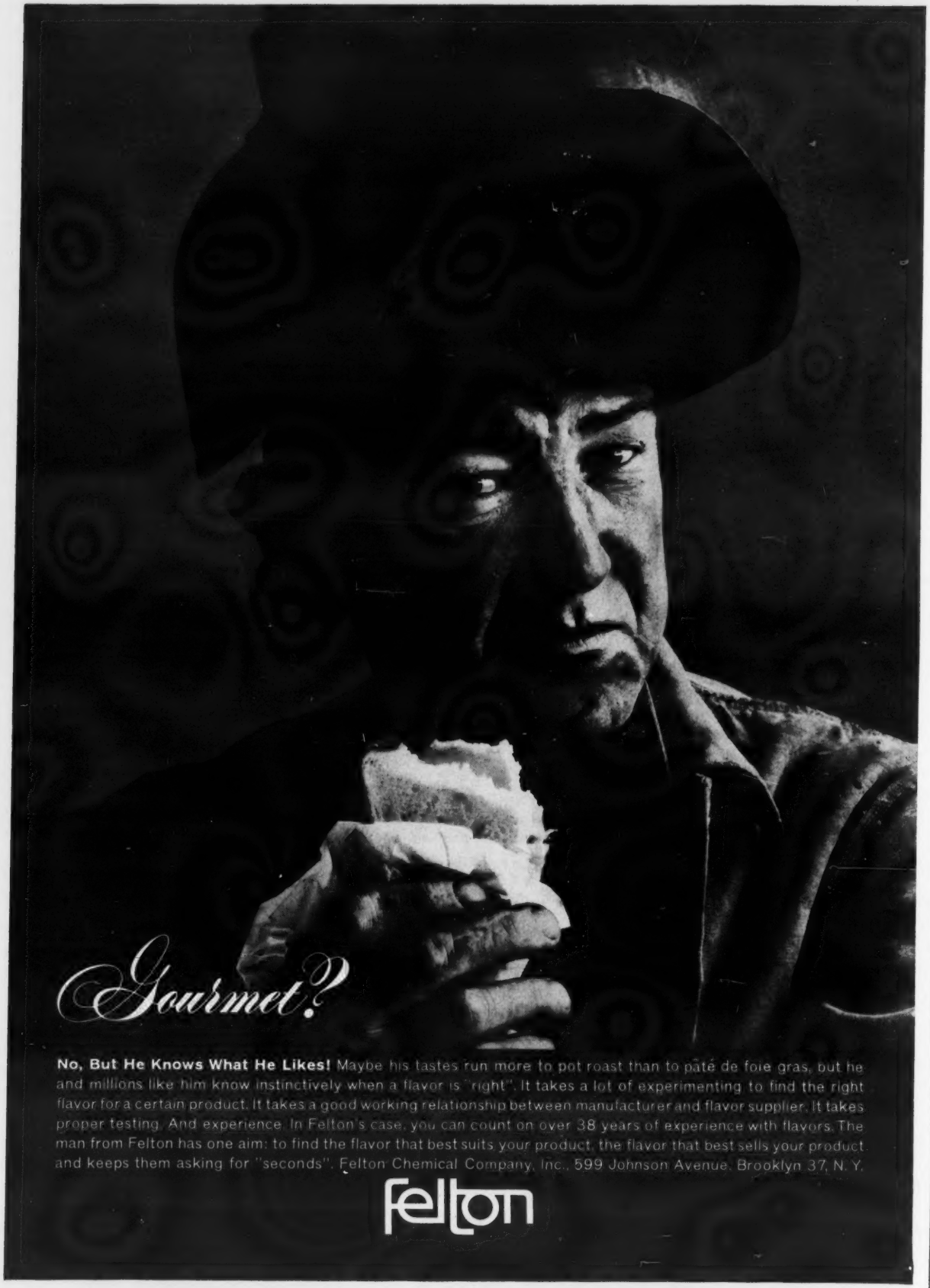
84 Two-piece cylindrical bulk containers for handling liquids, solids

88 Conveying in the flat at 500 cans per minute

90 New developments in lift trucks

96 Photoelectric monitor detects and rejects improper fills on automatic filling line

102 Versatile shipping case offers end-load savings, plus top-open convenience


Gourmet?
No, But He Knows What He Likes! Maybe his tastes run more to pot roast than to pâté de foie gras, but he and millions like him know instinctively when a flavor is "right". It takes a lot of experimenting to find the right flavor for a certain product. It takes a good working relationship between manufacturer and flavor supplier. It takes proper testing. And experience. In Felton's case, you can count on over 38 years of experience with flavors. The man from Felton has one aim: to find the flavor that best suits your product, the flavor that best sells your product and keeps them asking for "seconds". Felton Chemical Company, Inc., 599 Johnson Avenue, Brooklyn 37, N. Y.
Felton

7274 on Reader Service Slip.

FOOD PROCESSING

(Food Processing Preview)

©Putman Publishing Company 1961

EDITORIAL STAFF

Editor
Howard P. Milleville

Associate Editor, Palo Alto, Calif.
Karl Robe

Associate Editor
Norbert J. Leinen

Associate Editor
Joseph J. Voorhees

Associate Editor
Frank L. Bonem

Assistant Editor
Marion P. Lankford

Washington Editor
Joan Marziotti

Art Director
Ralph C. Donges

Editorial Assistant
Romayne L. Chamberlain

Editorial Production
Joann Schmitt
Patricia Beswick
Patsy L. Bleakley

Over 39,000 Circulation in the Food Processing Industries

Bakery Products
Beverages, Alcoholic and Non-alcoholic
Canned, Preserved and Dehydrated Foods
Confectionery and Chocolate Products
Dairy Products — Milk, Ice Cream, Butter
Frozen Foods
Grain Products — Flour, Cereals, Meals, Starches, etc.
Meat and Meat Products
Sugar and Syrups
Allied Lines — Flavors, Pickles, Vinegar, Gelatin, Oils and Fats, etc.
Consultants
Food Equipment Manufacturers

BPA Business Publications Audit of Circulation, Inc.

FOR MEN WHO MANAGE
Published in Chicago
Food Capital of the World

January 1961 Vol. 22 No. 1

Published monthly by
PUTMAN PUBLISHING COMPANY
111 E. Delaware Place
Chicago 11, Ill.
Telephone: WHitehall 4-6141

Creators of ***Putman-Style*** *Magazines*

FOOD PROCESSING ● FOOD BUSINESS
CHEMICAL PROCESSING
QUEST . . . for tomorrow
WHAT'S NEW in plant-engineering EQUIPMENT

ADMINISTRATION

RUSSELL L. PUTMAN
President and Publisher

CHARLES H. OESTMANN
Publishing Director

EWING W. GRAHAM
Vice President and Treasurer

GEORGE W. N. RIDDLE
Vice President—Research

THOMAS J. SCANLON
Director of Circulation

ROBERT C. McKAY
Circulation Manager

JOHN M. CAPPELLETTI
Production

Advertising Representatives and offices on page 103

SUBSCRIPTIONS

Qualified-Reader Subscriptions are accepted from selected management and technical Key-men in the food industries without charge. To apply for a qualified-reader subscription, fill in and mail the request-qualification form opposite last page. Other subscriptions — from "non-qualified" persons (those who are not key processing men in the food industries) — are accepted at $1.00 the copy, or $10.00 the year. Foreign subscriptions — subscriptions from countries outside the territory of the United States and its possessions, are acceptable at $35.00 per year. Such subscriptions are not counted as "industry circulation" on BPA audit reports. Accepted as controlled circulation publication at Mendota, Ill. Publication office: 111 East Delaware Place, Chicago 11, Illinois. *Printed in the United States*

CLEAN—ABILITY

Biggest Reason Why

SANDVIK STEEL BELT CONVEYORS

Handle So Many Foods . . .

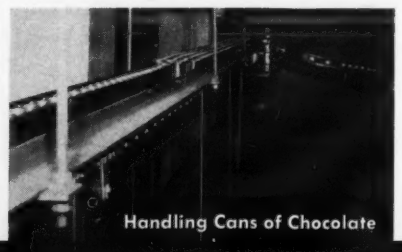
It's easy to keep a Sandvik steel belt conveyor healthfully clean. Boiling water or live steam can be applied directly to the solid, impermeable surface of the stainless or carbon belt... to meet the most stringent sanitary requirements.

Other advantages include:

- ***HIGH HEAT TRANSFER CAPACITY—*** For efficient freezing, cooling and baking.
- ***LOW FRICTION SURFACE—*** For easier slide handling, storage on and discharge from moving belt.
- ***HIGH STRENGTH—*** For greater load capacity and service life.

Write for free Sandvik Conveyor Booklet No. E-738.

Meat Handling


Handling Cans of Chocolate

Cake Icing

Conveying Bulk Sugar

SANDVIK STEEL BELT CONVEYORS ARE GIVING CLEAN, EFFICIENT PERFORMANCE IN THESE APPLICATIONS

BAKERY PRODUCTS
Biscuit and Cracker Bake Oven Bands, Cake Icing, Packaging

CANDY
Cooling Caramel, Chocolate Buds and Candy Bars, Handling Cocoa and Plastic Chocolate

CANNING & PACKAGING
Can and Bottle Filling and Handling, Prepared Foods

DAIRY PRODUCTS
Warehousing and Processing Cheese

FISH
Boning and Grading

MEAT
Boning and Trimming, Freezing, Packaging, Cleaning Poultry and Grading

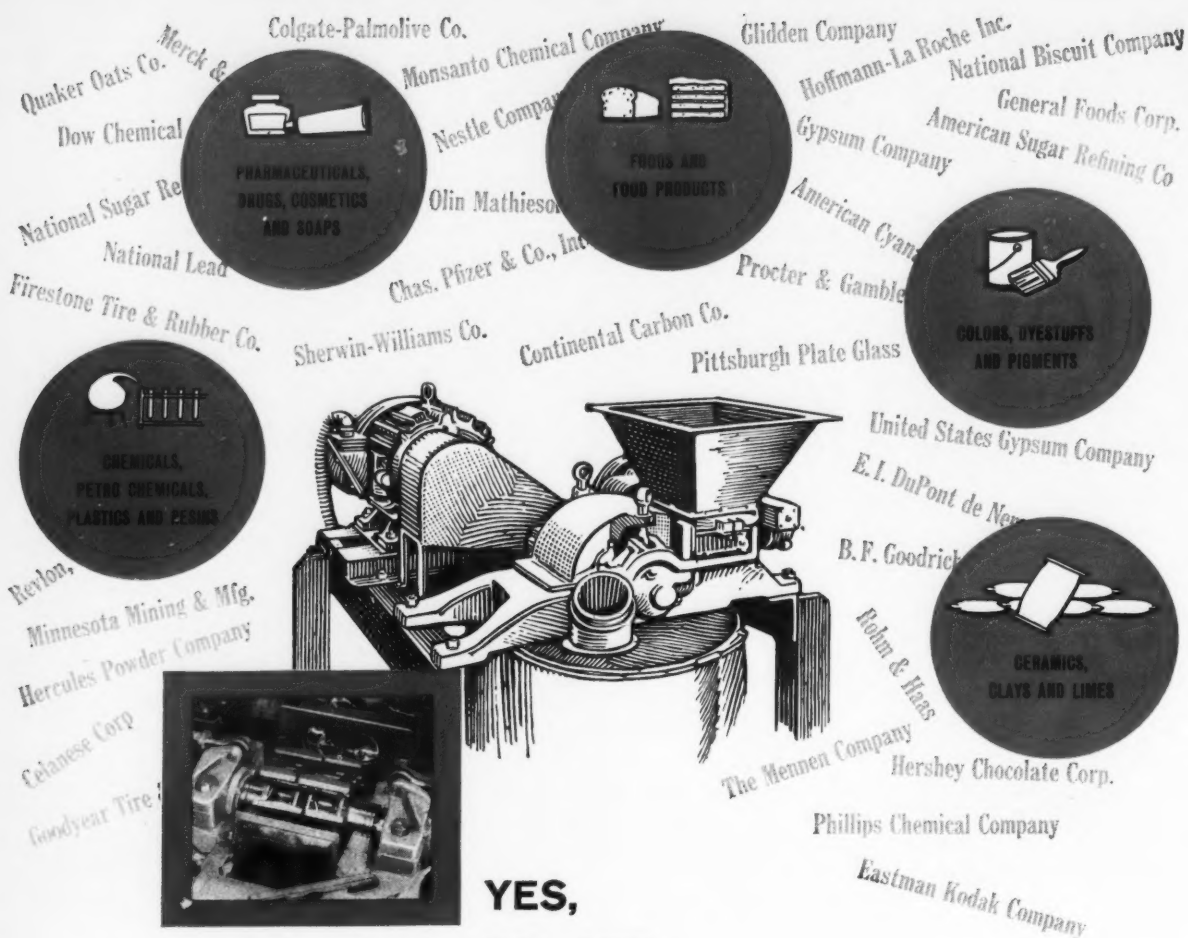
SUGAR
Bulk, Raw and Refined Sugar Handling, Cube Sugar Packaging

VEGETABLES
Washing and Inspection, Loose Freezing unpackaged French Fries, Peas, String Beans

SANDVIK STEEL BELT CONVEYORS

SANDVIK STEEL, INC.
STEEL BELT CONVEYOR DEPARTMENT
1702 Nevins Road • Fair Lawn, N. J.
Cleveland • Detroit • Chicago • Los Angeles
IN CANADA: **Sandvik Canadian Ltd., P. O. Drawer 1335, Mont. 9, P. Q.**
MANUFACTURERS OF STEEL BELT CONVEYORS FOR OVER 40 YEARS

7275 on Reader Service Slip.



YES,

WE ARE

NAME DROPPERS!

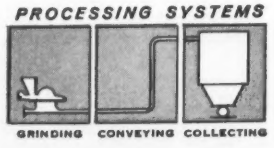
Because we are proud of the customers who use MIKRO-PULVERIZERS . . .

In the montage of names that form the background of this ad you will find just a sampling from our published list of prominent MIKRO-PRODUCT users in the process industries. They represent companies of all sizes . . . all equally prized.

Each of these MIKRO-PULVERIZER owners operates a unit with a distinct individuality . . . an internal mechanism adjusted to handle a particular job either in dry-grinding or wet milling.

If you want to know what a job-designed MIKRO-PULVERIZER has to offer you in the way of fine or ultra-fine grinding, precise particle size control, and economy of power and maintenance, write for Bulletin 51A.

MIKRO-Products
PULVERIZING MACHINERY COMPANY
63 Chatham Rd., Summit, N. J.
A Division of American-Marietta Company



REPRESENTED THROUGHOUT THE WORLD IN SALES, SERVICE AND MANUFACTURING FACILITIES.

7276 on Reader Service Slip.

conventions and exhibits

Jan. 22-25 National Canners Assn., annual meeting (including concurrent Canning Machinery & Supplies Assn. exhibit of canning and freezing machinery, supplies, services), Conrad Hilton Hotel, Chicago.

Jan. 23-26. Twelfth annual Plant Maintenance & Engineering Show and concurrent (Jan. 23-25) Conference, International Amphitheatre, Chicago.

Feb. 1-4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., and 2nd Southwest Heating and Air-Conditioning Exposition, Baker Hotel and Memorial Auditorium, Dallas.

Feb. 5-8. National Dairy Council, 46th annual meeting, Brown Hotel, Louisville.

Feb. 6-8. California Freezers Assn., 17th annual meeting, Mark Thomas' Inn, Monterey, Calif.

Feb. 10-12. Institute of American Poultry Industries, 32nd Annual Fact-Finding Conference, Municipal Auditorium, Kansas City, Mo.

Feb. 28-Mar. 1. Ninth National Dairy Engineering Conference, Dept. of Agricultural Engineering, Michigan State Univ., in cooperation with Dept. of Food Science and National Assn. of Dairy Equipment Manufacturers, Michigan State University, East Lansing.

Mar. 5-8. National Assn. of Frozen Food Packers, 20th annual convention & exposition, Hotel Statler-Hilton, Dallas.

Mar. 9-10. Dairy Industries Supply Assn., 42nd annual meeting, Barbizon Plaza Hotel, New York, N.Y.

Mar. 9-11. National Food Conference Assn., Second National Youthpower Congress, Palmer House, Chicago.

Mar. 21-24. Institution Food & Supply Show, New York Trade Show Bldg., New York, N.Y.

Mar. 21-30. American Chemical Society, 139th national meeting (Mar. 22-25 for meetings of Div. of Agric. & Food Chemistry), Kiel Auditorium and various hotels, St. Louis, Mo.

Mar. 26-30. National Assn. of Refrigerated Warehouses, The Refrigeration Research Foundation, joint annual meeting, San Francisco.

Mar. 27-30. National Assn. of Refrigerated Warehouses, annual convention, San Francisco.

Apr. 4-6. Research & Development Associates, 15th annual meeting, Hotel John Marshall, Richmond, Va.; also Fort Lee, Va., and Norfolk Naval Base.

April 8-16. Second Annual Food Exposition, New York Trade Show Bldg., New York, N.Y.

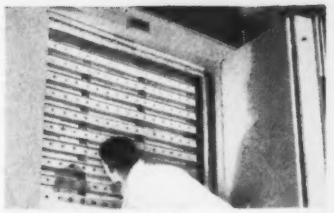
Apr. 9-13. American Assn. of Cereal Chemists, 46th annual meeting, Baker Hotel, Dallas.

Apr. 10-13. American Management Assn., 30th AMA National Packaging Exposition & Conference, Chicago Exposition Center, Chicago.

April. 11-12. Food Engineering Conference, Food Science Dept., Michigan State University, East Lansing.

Apr. 13-14. Civil Defense Training Course for the Food Industry (open to attendance), sponsored by American Assn. of Cereal Chemists, Food & Drug Administration and Dallas City-County Civil Defense Office, Dallas.

Apr. 20-21. National Fruit & Syrup Manufacturers Assn., Inc., 44th annual convention, Savoy-Hilton Hotel, New York, N.Y.


In processing plants

Accepted!

Preferred!

Performance-proved!

In "reefer" trucks or cars

In "cold rooms"

Insist on

genetron®

super-dry refrigerants

to help assure 0° or less for your frozen foods

In storage lockers

General Chemical's advanced manufacturing techniques have helped bring new quality standards . . . new highs of purity and dryness for refrigerants. "Genetron" refrigerants are approved . . . accepted . . . *preferred* because they're performance-proved as original charge and replacement in all types of modern refrigerating equipment. Available from leading wholesalers coast to coast. Insist on "Genetron" super-dry refrigerants from your wholesaler.

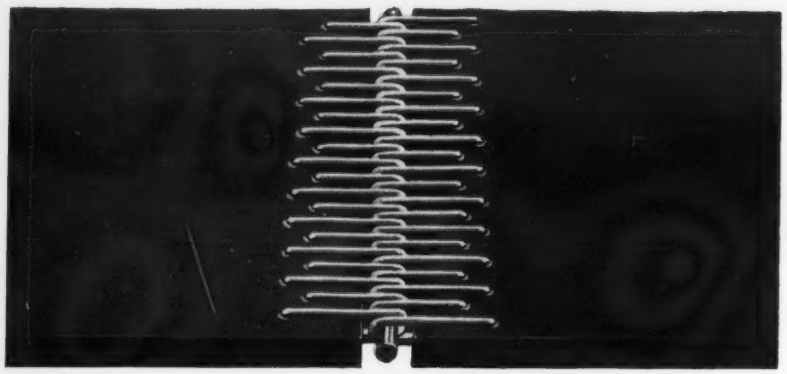
In display cases

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

7277 on Reader Service Slip.

PULL LOOSE ENDS TOGETHER WITH CLIPPER Hooks and Lacers



Time is money . . . and you can save time in joining two loose ends with Clipper Hooks and Lacers. They produce secure, smooth joints in minutes embedding hooks flush with the surfaces of pieces joined. When fastening belts, aprons, or ribbons, they provide a flat, flexible joint that rides freely over conveyor rollers. When joining plastics and other rigid materials they produce a firm "hinge" that is as strong as the material itself. In either case, pieces up to 12 inches wide and 13/32 inches thick are laced in one easy operation. So whenever you have a problem that calls for making two pieces one — check with Clipper.

For more information— *Detailed product information and case history examples of Clipper machine-lacing benefits are contained in Bulletin No. 157. Send for your free copy today.*

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

972 Front Ave., N. W., Grand Rapids 2, Michigan

7278 on Reader Service Slip.

PRODUCTS AND PACKAGES

'Free-flow' frozen spuds . .

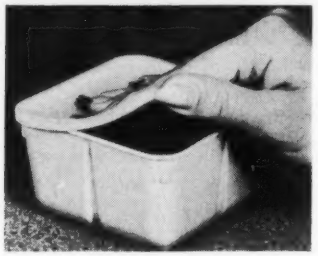
. . . in high-impact two-lb poly pouches, are among latest of the instant-quick-frozen free-flow bulk vegetables. Two-mil high-impact Crown Poly film is used for the Small New Potatoes; 3-mil film successfully handles the edgy Crinkle Cut French Fries.

Supplier: Crown Poly packs by Crown Zellerbach Corp., Western-Waxide Div., 2101 Williams St., San Leandro, Calif.

7279 on Reader Service Slip.

Peel-open plastic package . . .

. . . for frozen and refrigerated dairy specialties features a double-grip lid seal which assures maximum retention of product quality and freshness, yet allows easy opening. To open, one corner of lid is lifted and peeled back. With



container's edges flexed, side grooves allow air to enter package and contents are easily removed. Four types—polyethylene, hi-impact styrene (blue or yellow), crystal-clear regular styrene and polypropylene—all have FDA approval. Same-size lid fits sizes from eight to 32 oz.

Supplier: Polar Container Corp., 625 W. Diversey, Chicago, Ill.

7280 on Reader Service Slip.

Cheddar 'chowder' . . .

. . . more precisely, Condensed Cheese Soup, is one of two new soup varieties (the other, Condensed Alphabet Soup with Vegetables) introduced by Heinz following six months of successful test marketing. Made from Wisconsin Cheddar and whole milk, and seasoned with spices, the Cheese Soup also has potential as an ingredient in preparing meals or as a food sauce or garnish for meat, green vegetables and macaroni dishes.

Unfrozen 'boil-in' meats . . .

. . . offered nationally by Swift & Company, Chicago, may be served either cold (they are fully cooked), or hot (by immersing bags in boiling water for five to seven min).

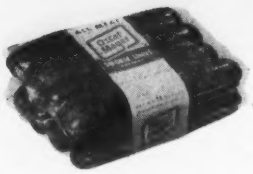
The vacuum-packaged products are sliced beef, pork, ham, turkey, spareribs tidbits and skinless franks — all in tangy barbecue sauce.

First one-gal paperboard carton . . .

. . . introduced at Dairy Show, and to be available sometime in 1961, completes the full line of Pure-Pak cartons — from half-pt to full gal. Carton weighs less than five oz unfilled, as opposed to the nearly 3½ lb glass jug. Space needed is 25 sq in, in contrast with 36 sq in for the jug.

Supplier: Ex-Cell-O Corp., Packaging Equipment Division, 1202 Oakman Blvd., Detroit 32, Mich.

7281 on Reader Service Slip



Sealed in 'Super Saran' . . .

. . . that conforms exactly under vacuum to shape of product, Oscar Mayer Smokie Link sausages are protected in freshness, flavor and color. In addition, the film is fully transparent, displaying the product completely. "Twin Pak" package—two separately sealed sections of four sausages each—permits housewife to open one section and return the other to refrigerator, still in an air-tight seal.

Supplier: The Dow Chemical Co., Midland, Mich.

7283 on Reader Service Slip.

Really easy-open shipper . . .

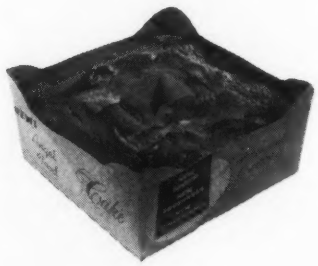
. . . employs side flaps which meet at center, are closed first. End flaps, sealed outside, do not meet. Scored, unglued end sections of these flaps are readily accessible. By raising and pulling back on these unglued sections, container may be opened quickly and easily.

Supplier: Container Corporation of America, 38 S. Dearborn St., Chicago 3, Ill.

7282 on Reader Service Slip.

Bake-in, sell-in pan package . . .

. . . for cakes, is a tapered, foil-lined tray with raised corners and a foil-laminated rectangular center post. Bakers deposit batter directly into the pan-package. The cake is baked, film-wrapped and sold right in the same package.



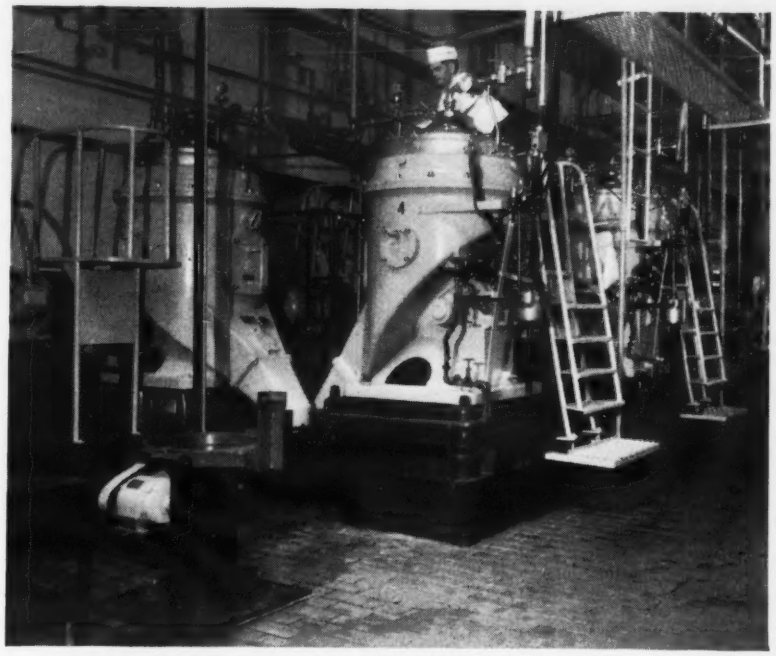
To bakers, elimination of depanning alone is great advantage in that it greatly reduces number of "cripples."

New package idea provides consumer with a fresher, cake because the pan it was baked in protects it from flavor and moisture loss as well as physical damage throughout the overwrapping, shipping and retail display stages.

Supplier: Marathon, A Division of American Can Co., Menasha, Wis.

7284 on Reader Service Slip.

FLUIDICS* AT WORK



Continuous centrifuging improves juice quality without sacrifice in yield

At Pasco Packing Co., Dade City, Fla., these four Pfaudler Titan centrifuges are the key to producing juice having the high quality of a single light-finish, without any sacrifice in yield.

Under Pasco's new procedure, solids from the first finish are countercurrent-washed four times to recover additional sugar solids. Centrifuging the juice derived from these washings removes unwanted fine solids, detrimental to quality. By eliminating heavy finishing, Pasco no longer presses undesirable ingredients from the pulp. Centrifuging also reduces aeration and thus improves shelf life of the concentrate.

VERSATILITY. Since the Titan can continuously remove pulp from extractor juice with solids as high as *28% by volume*, juice processors have flexibility to meet process changes caused by seasonal variations in the fruit.

The Pfaudler Titan puts 7800 times gravity to work for you. This, along with a choice of disc sizes, makes separation of any size particle up to ⅛" diameter possible. And the Titan operates *continuously*, ejects sludge automatically in 5 seconds or less.

OTHER USES. Processing citrus juice is one application for the Titan's many unusual features. There are others. For example, the "Selecteject" control provides *solids only* discharge while maintaining a sludge blanket at the bowl periphery. This is useful with slimy solids where maximum dewatering or concentration is required. "Selecteject" also lets you handle coarse, compacting, granular solids with instantaneous, complete discharge.

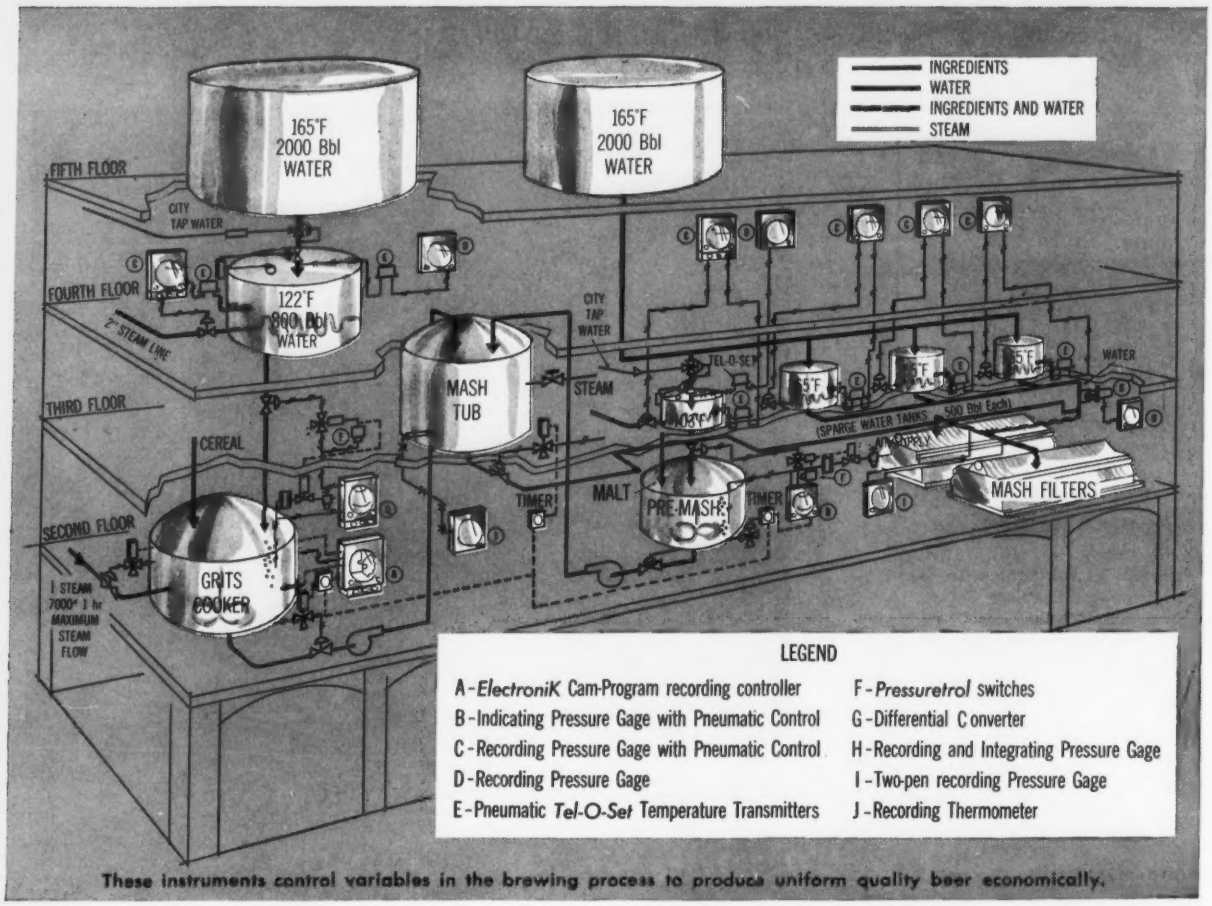
TEST PROGRAM. Let us test your product in your plant with a Pfaudler demonstration unit, or at Pfaudler's Test Center. For more information, ask for Bulletin 946. Write our Pfaudler Div., Dept. FP-11 Rochester 3, N. Y.

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment, and experience in solving problems involving fluids.

PFAUDLER PERMUTIT INC.

Specialists in FLUIDICS . . . the science of fluid processes

7285 on Reader Service Slip.



These instruments control variables in the brewing process to produce uniform quality beer economically.

Ruppert's Beer brews better with Honeywell controls

At Ruppert's Manhattan brewery, which produces 250,000 gallons of high-quality beer a day, process control instrumentation improved on beer quality and uniformity. At the same time, this instrumentation solved the problem of maintaining full production even though work shifts were shortened.

The Honeywell-designed control system is grouped on two panels where temperature, pressure, liquid level and flow are all recorded or controlled. Control instrumentation is located on the cereal cooker, pre-mash tank, and sparge water tanks. Recording instruments are placed at convenient locations throughout the system. This combination eliminates any possibility of spoilage through errors in the brewing process.

Process control instrumentation brings many important savings to food processors. To learn what particular advantages it can bring to your own process, call your nearby Honeywell field engineer today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa. In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

Honeywell

First in Control

SINCE 1885

Mortimer W. Brenner, vice-president and director of brewing, discusses instrument operation with Ruppert Vernon, vice-president of Ruppert Brewing Company. This panel, one of two control centers, has instruments for measuring and controlling temperature, liquid level, and time of the brewing cycle.

7286 on Reader Service Slip.

association news

D. J. Ridenour (left, below) technical director of Wm. J. Stange Co., Chicago manufacturer of soluble and ground spice seasonings and food colorings, received the "Hall of

Fame" award from the National Pickle Packers during the 1960 annual meeting for creative technical achievements. Shown presenting the tray signifying the award is Evert Landon of Nalley's Inc., Pickle Packers president.

At Michigan State University's **Ninth Annual National Dairy Engineering Conference,** speakers from processing plants, equipment manufacturers, etc., will cover automation of receiving, processing, packaging and handling of processed products. Other topics to be covered include use of quality measuring devices for automation, computers in a processing plant, quality control, public health approval of systems and labor-management experiences.

Dr. Charles Glen King, executive director of The Nutrition Foundation, Inc., is new president-elect of the **American Public Health Association.** He will become president at conclusion of the 1961 annual meeting in Detroit.

The Charles F. Spencer Award, consisting of a medallion and a $1000 honorarium, and given for outstanding achievement in agricultural and food chemistry, has been presented to **Dr. Clyde H. Bailey,** dean emeritus of the University of Minnesota Institue of Agriculture.

ERIEZ *Magnetic Minute*

60 seconds that will help you improve operating efficiency.

Get UNWANTED IRON out of your product and flow lines

PATENTED

Can you be sure there's no fine ferrous contamination or tramp iron in your finished product or your flow lines? You can if you install powerful Permament Eriez Grate Magnets strategically. Now you can have foolproof magnetic protection where you've never been able to have it before.

- Choose from the most complete selection available . . . wing types, drawer types, multiple bank, rotary type, grates in housings, Rota-Grates in housings, and odd shaped assemblies — in 162 sizes.
- Performance is near perfect on a multitude of free-flowing bulk materials to ½ inch diameter. Special units available for liquid lines.
- Quickly and easily installed in steep-sloped hoppers, odd and regular shaped hoppers, floor openings, vertical closed chutes, ducts, etc.
- Erium® powered for more magnetic strength. Erium is our exclusive power source, designed to fit your application.

There's an Eriez Permanent Grate Magnet to solve your problems of ferrous contamination . . . yes, even problems which you may not know exist.

For big new bulletin, write to:

ERIEZ MANUFACTURING CO.
75NA Magnet Drive, Erie, Pa.

MAGNA-THOUGHT

"First cost is last cost". This is the policy we believe is best in the long run for our customers and ourselves.

R. F. MERWIN
President

ERIEZ

A GROWTH COMPANY . . .
10 NEW PRODUCTS IN THE LAST 5 YEARS

7287 on Reader Service Slip.

food regulations

FDA drafts law to push deadline on food additives beyond March

FDA is drafting legislation to extend the Food Additives Law grace period for additives clearance beyond March 6, 1961, and will introduce it early in the next session of Congress through its parent, HEW. The legislative plan is to limit the time extentions only to those specific chemicals on which industry is conducting tests aimed at filing of a Food Additive Petition with all practicable speed.

FDA Deputy Commissioner John L. Harvey disclosed the extension legislation plan at the Food Law Institute meeting in Washington Nov. 28. (For report on discussions at this meeting about unresolved additives problems, see page 32.)

"We are agreed," Harvey told the meeting, "that there is an apparent need for some extension of time" for companies to obtain additives clearance, and he announced that legislation to enable this is now being prepared by FDA.

He noted that FDA's legislative plan would not preclude industry from supporting rival legislation if it wishes to.

Red No. 1 fate: 'tolerance' or 'a carcinogen'?

FDA's decertification puts color on ice while lab tests are analyzed

FDA's decertification of FD&C Red No. 1 stands only until a safe tolerance is found and a regulation can be issued for the color's use. FDA officials are trying to make this heard above the din of protests surrounding the manner in which cancellation of Red No. 1 certificates was announced — "revealed" is the word used most often by food processing and chemical industry representatives.

FDA emphasizes that the color was banned because of liver damage and does not come under the Delaney clause. However, some newspapers have played up the four cancer cases spotted in test animals, and their stories leave the impression that Red No. 1 is a proved carcinogen.

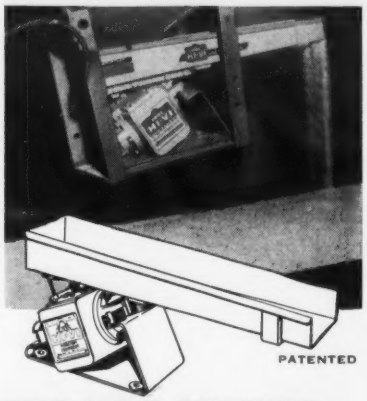
Do not be surprised, though, if a Delaney clause decertification of Red No. 1 does eventually get issued: FDA is taking a new look at the 24 tumors — four of them cancerous — that developed among 200 rodents that received the color in their diets. FDA's pharmacology director, Arnold J. Lehman, put the handwriting on the wall.

"As time progresses, we may have to assume that this (Red No. 1) is a carcinogen," Lehman said. Deputy Commissioner John L. Harvey publicly admitted the four cancer cases, but pointed out that there was not yet sufficient evidence for a positive link between the color and cancer. He did not mention carcinogenic action — only liver damage — in his delisting order.

It was Lehman who stirred the hornets nest of protest over the way FDA "revealed" its findings on Red No. 1. It happened at the Nov. 17 FDA-Industry meeting in Washington on the new color additives law. The recent and current tests on Red No. 1 were not on the agenda and Administrator Harvey was not prepared to discuss them except in generalities. However, on Nov. 16, Lehman was given the latest data from the tests. He worked late into the night on an interpretation which was still fresh in mind during the

ERIEZ *Magnetic Minute*

60 seconds that will help you improve operating efficiency.



PATENTED

FEED MOST ANYTHING, FROM OUNCES TO MANY TONS PER HOUR

There's an Eriez Vibratory Feeder to handle anything from powders to parts, rivets to rocks!

Versatile, AC operated Hi-Vi® Feeders, with 100% range of control, provide accurate, economical performance whether you're feeding a few ounces or many tons per hour. They're ideal for many feeding operations including spreading, sorting, aerating, cooling, drying, sifting, separating, proportioning, formulating, mixing, coating, and dusting.

Only Eriez gives you this exclusive combination of advantages: No rectifier needed (AC operation) . . . Totally enclosed drive element is ideal for hazardous, dusty, wet, or corrosive conditions . . . New fibre glass springs assure superior performance and control, longer life because spring breakage is practically eliminated.

Choose from many models for light, medium, or heavy duty applications.

For big new catalog, write to:

ERIEZ MANUFACTURING CO.
75NB Magnet Drive, Erie, Pa.

MAGNA-THOUGHT

The selection of any piece of equipment should be based on its ability to perform effectively on the job.

R. J. TORREY
Manager
Research & Development

ERIEZ

A GROWTH COMPANY . . .
10 NEW PRODUCTS IN THE LAST 5 YEARS

7288 on Reader Service Slip.

WILL THE RUSH TO POLY-UNSATURATED OILS COST YOU SALES?

Consumers are becoming highly conscious of the benefits of poly-unsaturated fats in the foods they eat.

This is no food fad. It's a definite, established trend: one that's based on sound health reasons . . . one that's just beginning to make its impact felt.

CHECK SAFFLOWER OIL NOW!

If you use fats or oils in the foods you process or package, *now* is the time to analyze the effect this trend will have on your sales.

Now is the time to consider the advantages you get from PVO Safflower Oil — the versatile oil with a higher poly-unsaturated content than any other vegetable oil available.

Check these advantages:

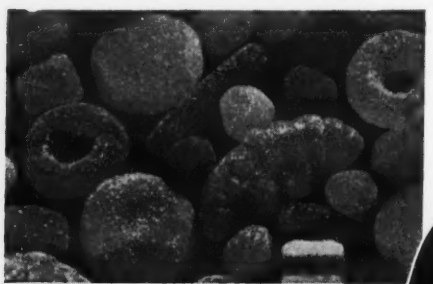
- ✓ **76.5% Linoleic Poly-Unsaturates (Only 10.5% Saturates)**
- ✓ **A Ratio of 7.6 to 1—Poly-Unsaturates to Saturates**
- ✓ **Bland Flavor**
- ✓ **High Smoke Point**
- ✓ **Long Cold Test**

Write today — or contact your PVO broker — for all the information on Safflower Oil by PVO process.

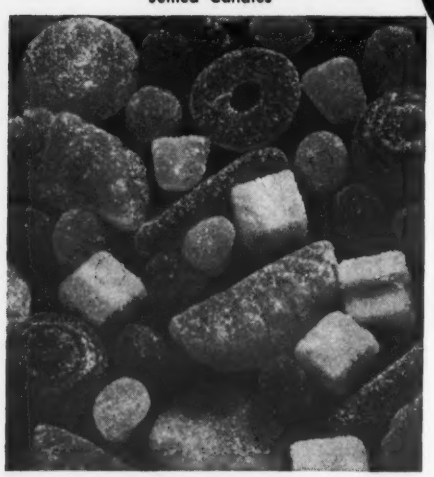
PACIFIC VEGETABLE OIL CORP.

DEPT. FP-161 • 1145 SOUTH TENTH STREET • RICHMOND, CALIFORNIA

7289 on Reader Service Slip.



CONFECTO-JEL
Especially made for Jellied Candies



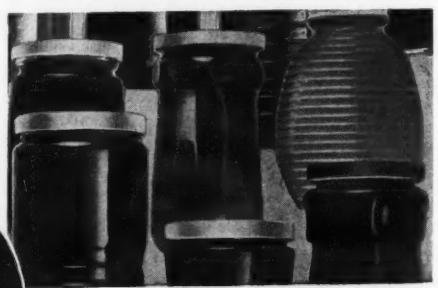
better product consistency and quality for over 40 years

SPEAS
APPLE PECTINS

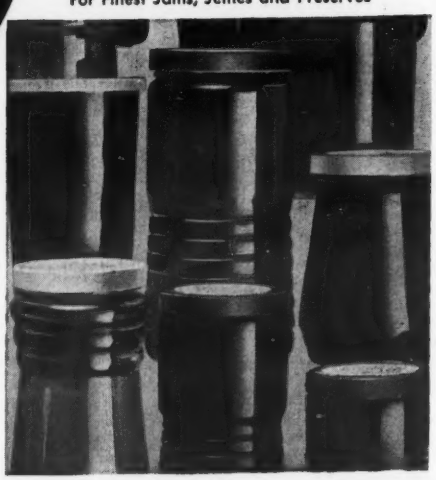
- Adaptable to wide range of PH levels.
- Neutral color and flavor—blends naturally with more different fruits than any other pectin.
- Gives product resiliency to avoid breakage during shipping.
- Improves spreadability of jams, jellies and preserves.
- Standardized to uniform strength so that product always has the same consistency.

Write, wire or phone for full information, technical advice, or location of nearest warehouse.

SPEAS COMPANY
GENERAL OFFICES • KANSAS CITY 20, MO.



NUTRL-JEL
Regular and Slow Set
For Finest Jams, Jellies and Preserves



7290 on Reader Service Slip.

meeting on the 17th.

An industry representative asked Lehman how the tests were progressing and whether any of the results could be revealed. Lehman said he was delighted that events of the preceding day enabled him to comply, and he answered the question from the floor. The report now is history:

Lab Tests

Groups of rats are being fed diets containing Red No. 1 at levels ranging from 5% to 0.5% and the consequences of this are being compared with groups of control rats. After some 18 months of testing, about 45% of the rats being fed Red No. 1 have died, more than a third of these showing some liver damage. Only 27% of the control rats died in this period, none of them showing any liver damage.

Comparable tests are also being run on mice and dogs, with similar results.

Stunned industry representatives immediately challenged Harvey to confirm or deny Lehman's report. Harvey met with Lehman during the lunch recess. At the afternoon session he confirmed the report and information on the four cancers.

On a weight basis, Red No. 1 is not as significant as Red No. 2. Last year FDA certified only 125,867 pounds of Red No. 1 made by three firms. The agency certified 541,943 pounds of Red No. 2. Red No. 1 is used principally in frankfurter casings, maraschino cherries, ice cream, and some mouthwashes. To these processors, though, its delisting can be very serious. None of the proposed substitute reds are "red" enough; they all have hints of blues or greens in them.

Other colors, too, could soon fall to the delisting axe, but not because of any connection with Red No. 1. FDA is in the midst of dog studies on Yellow No. 6 and Red No. 4. Although they are chemically related to Red No. 1, FDA denies the study is being made for this reason. "There is an indication of the possibility of carcinogenicity," says FDA.

This flap is gummed—just fold and seal.

how tac can help users of food chemicals

TAC

TAC (Tested Additive Chemicals) is a new quality designation...a grade suitable for approved uses in food. This line is specially produced under strict quality control to more exacting requirements for certain significant impurities than called for by either U.S.P. or N.F. quality standards.

U.S.P. and N.F. specifications for certain impurities are in some cases not adequate for chemicals used in foods. Chemicals to be classified as food grade should be controlled to more strict requirements for heavy metals, such as lead and arsenic, and in certain instances other elements, such as selenium.

As a special service to the food industry, Mallinckrodt has undertaken to make available a line of TESTED ADDITIVE CHEMICALS (TAC) whose purity is rigidly controlled to meet exacting requirements for these elements. This new line of chemicals represents Mallinckrodt's latest achievement in its continuing efforts to provide all segments of industry with fine chemicals of the highest purity.

You will want to know more about TAC chemicals. Simply complete the form below, remove this page, fold, seal and mail. Your inquiry will receive our prompt attention.

Name _____

Title _____

Firm Name _____

Address _____

City _____ Zone _____ State _____

(TEAR HERE)

MALLINCKRODT CHEMICAL WORKS St. Louis 7, Mo. New York 8, N. Y. Montreal, Canada

FILL OUT AND MAIL TODAY!

Postage Will be Paid by Addressee

No Postage Stamp Necessary if Mailed in the United States

BUSINESS REPLY MAIL

First Class Mail—Permit No. 46, St. Louis 7, Mo.

MALLINCKRODT CHEMICAL WORKS

Second and Mallinckrodt Streets
St. Louis 7, Mo.

Attn: tac Chemicals Department

FDA report asks for better sanitation in frozen food plants

FDA is "beefing up" (as a spokesman phrases it) the agency's in-plant inspection capability. This follows earlier disclosure of the contents of a new frozen foods sanitary practices report.

The report concludes that sanitary practices in the frozen foods industry — especially in the packing of precooked items which will not undergo the sterilizing effects of home cooking — are very poor. Teams consisting of one FDA inspector and one microbiologist have examined 81 food items from 63 plants since March, 1958.

The teams reported a number of "grossly insanitary conditions," some of which resulted in immediate regulatory action. In general, smaller packers were most guilty.

The purpose of the survey was to correlate high bacterial counts with insanitary practices. This would simplify legal actions. In this respect, the survey failed. FDA says there still is not a reliable quantitative correlation. However, the attempt will continue. One FDA official says that the survey at least "gave us enough of a glimpse into the problem that we now know it is not hopeless."

FDA officials who discuss the report are impressed at the apparent ease with which packers can meet sanitation goals when they have to. The report states that "on a number of occasions products packed during inspection showed substantially lower contamination than the same products packed prior to inspection."

There are two major recommendations:

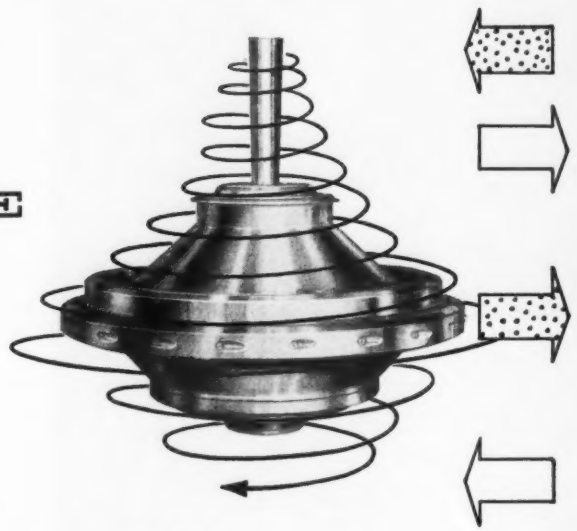
1. Steps should be taken to encourage better industry self-policing, especially in person-

Process Trends from DORR-OLIVER

A SERVICE TO THE PROCESSING INDUSTRIES

THE CENTRIFUGE TAKES OVER

A long-neglected equipment item is developing into a giant that is starting new trends in processing operations



Although the centrifuge has been with us for a long time, its full potentialities are only now being realized in the processing field. Partly, this is due to the increasing demand for faster, more precise methods of separation and classification, adaptable to continuous, automatic operation. More particularly, it is due to radical new developments in the centrifuge itself.

Centrifuges have now become so versatile in operation and have advanced so much in size, power and capability that opportunities for profitable application are virtually unlimited. They are replacing filters, settling tanks, screening and other separation and classification equipment. In many cases, they are cutting days off processing time. Important, too, since the centrifuge substitutes horsepower for size, is the greatly reduced floor space requirements and the smaller amount of critical material needed when handling highly corrosive solutions.

Dorr-Oliver has taken a leading part in the development of these newer, more versatile and more powerful units. An example is the high speed, high pressure Merco® centrifuge for operation at elevated temperatures. A successful application is in separating the catalyst from the polymer in the production of the new high density polyethylene.

Features of Dorr-Oliver design are the overhead bearing and drive which remove some of the limitations of conventional units and the revolutionary return flow principle that permits concentrating, washing, clarifying, classifying and recovery of soluble values at pressures up to 150 psi. Probably the largest centrifuge now in operation is a Merco unit. Rotor speeds up to 3300 rpm and capacities up to 600 gpm are possible. Smaller size, specialized units, among them the Mercone® Screening Centrifuge, are finding application in the food and pharmaceutical industries.

To those interested in the possibilities of centrifugation, Dorr-Oliver offers a wealth of information. For investigation and evaluation, pilot plant models are offered on a sale or rental basis. Just drop a line to Dorr-Oliver Incorporated, Stamford, Connecticut.

Dorr-Oliver offers a wide range of equipment, methods and complete systems for the processing industries. Operations include:

ROASTING • DRYING • CALCINATION • CLASSIFICATION • THICKENING • SCREENING • FILTRATION • CLARIFICATION • WASHING • AGITATION • CENTRIFUGATION • ION EXCHANGE • PUMPING

7292 on Reader Service Slip.

For more information on product at left, circle 7291 . . . see information request blank opposite last page.

nel supervision.

2. Some processing techniques should be improved and more forethought should be given to scheduling operations to avoid time and temperature abuses.

The most immediate result of the report will be to increase plant inspections. Plants will be inspected more frequently and the FDA will try to add to its inspection staff next fiscal year.

This type of report often arouses Congressional sympathy and leads to increased funds for the agency's operations. On the other hand, there is always the possibility that Congress will chastise the agency for "allowing these conditions to exist — what are you doing with the funds we appropriate?"

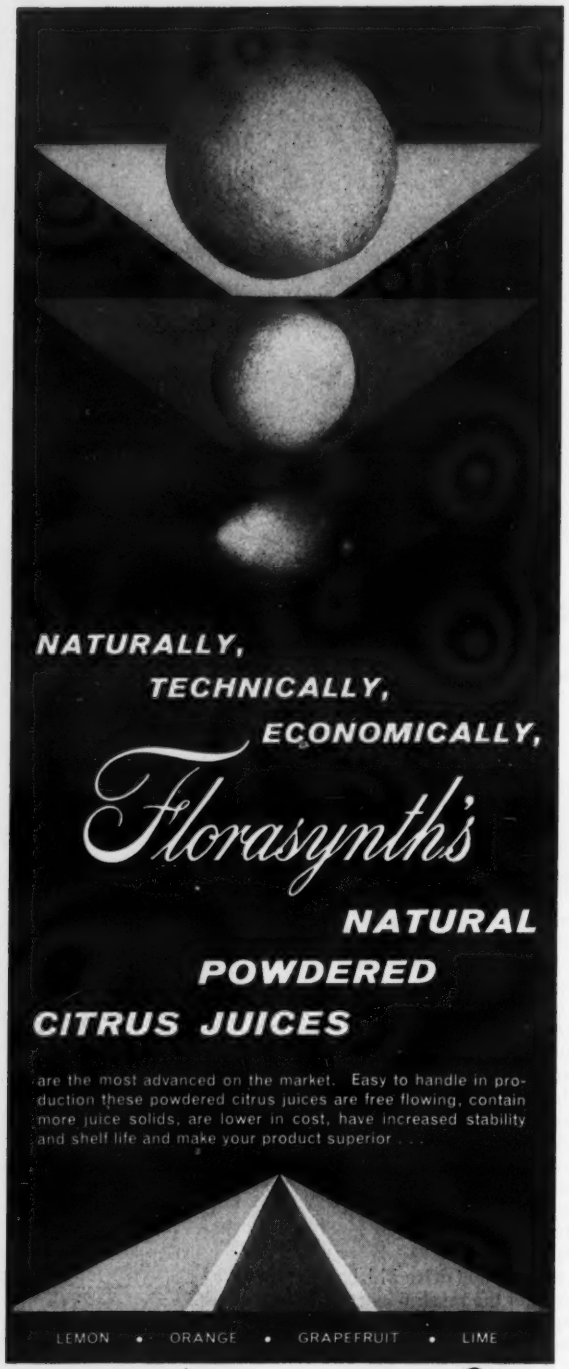
Information officials and inspectors are stressing that many of the conditions cited already have been cleaned up by industry at inspector's suggestions.

FDA views N.Y. court's olive oil ruling as threat to seizure power

FDA enforcement officers view the New York State olive oil decision as a setback and the most serious recent threat to FDA's power to seize misbranded foods. The agency has asked the Justice Department to appeal the decision of Judge James T. Foley (U. S. District Court, Northern District of New York, U. S. vs 40 cases . . . packed by A.M.S. Packing Co., Civil No 8040)

As a test case, the FDA seized about 40 cases of a cooking oil labeled as blended with 25% pure olive oil. FDA charged that the cooking oil contained little if any olive oil and contended that the product was misbranded while held for sale after shipment in interstate commerce because it was a blend of oils that had been shipped into New York form outside the state. The cooking oil was sold only within the state.

A.M.S. Packing Co., New York City, asked for dismissal on the grounds that the goods


NATURALLY,
TECHNICALLY,
ECONOMICALLY,
Florasynth's
NATURAL
POWDERED
CITRUS JUICES
are the most advanced on the market. Easy to handle in production these powdered citrus juices are free flowing, contain more juice solids, are lower in cost, have increased stability and shelf life and make your product superior . . .
LEMON • ORANGE • GRAPEFRUIT • LIME

Florasynth LABORATORIES, INC.

EXECUTIVE OFFICES:
900 VAN NEST AVENUE (BOX 12), NEW YORK 62, N. Y.
CHICAGO 6 • LOS ANGELES 21

ATLANTA • BOSTON • CINCINNATI • DETROIT • MINNEAPOLIS
NEW ORLEANS • ST. LOUIS • SAN FRANCISCO • DALLAS
Florasynth Labs. (Canada Ltd.) Montreal • Toronto • Vancouver • Winnipeg
Agts. & Dist. in Mexico: Drogueria & Farmacia Mex. S. A., Mexico 1, D. F.
SALES OFFICES IN PRINCIPAL FOREIGN COUNTRIES

7293 on Reader Service Slip.

MIX IT UP . . .
WITH A
michigan
INDUSTRIAL PROPELLERS, like all Michigan propellers, are manufactured by the exclusive Machined-Pitch Process. The guaranteed absolute accuracy of these propellers makes them a "must" for agitating, mixing or pumping, especially when long shaft mounts are necessary. The incomparably accurate balance and blade indexing eliminate vibration and shaft "whip" to greatly prolong the life of your apparatus.
Stainless Steel, Bronze, Aluminum, or almost any alloy you desire is available in a wide variety of propeller types. The superior quality of Michigan Industrial Propellers makes them the "standard" of the industry.
Write for FREE Industrial Propeller Catalog NOW!
michigan wheel co.
GRAND RAPIDS 2, MICHIGAN 1-6

7294 on Reader Service Slip.

PLATECOIL ®
FOR ALL KINDS OF TANK AND PROCESS HEATING AND COOLING
- Built to fit application requirements
- High heat transfer capacity
- Compact units save space
- Easy to install
- Easy to remove for cleaning
- Available in variety of weldable metals
- Operating Pressures up to 250 psig.

Send for Bulletin P53
PLATECOIL® DIVISION
TRANTER MANUFACTURING, Inc., LANSING 9, MICHIGAN

7295 on Reader Service Slip.

were not in interstate commerce and not subject to Federal law. Judge Foley ruled for the packing company because the raw materials that had moved into New York were legal at the time of movement and the finished product was sold only within the state.

The decision stated in part that there are "no consequences here of gravity to the citizens of New York because New York has many statutes to reach the evil if it does exist in the labeling of the product. It is a good example where local government is able to act wisely and efficiently in the interests of its citizens and Federal intrusion should be restrained."

The court did not rule on whether the goods actually were misbranded.

FDA lawyers say that if the decision stands, a significant number of cases will be taken from the agency's jurisdiction. At present, about three to five percent of FDA's 1200 to 1800 cases per year arise under the 1948 amendment pertaining to products "while held for sale after shipment in interstate commerce."

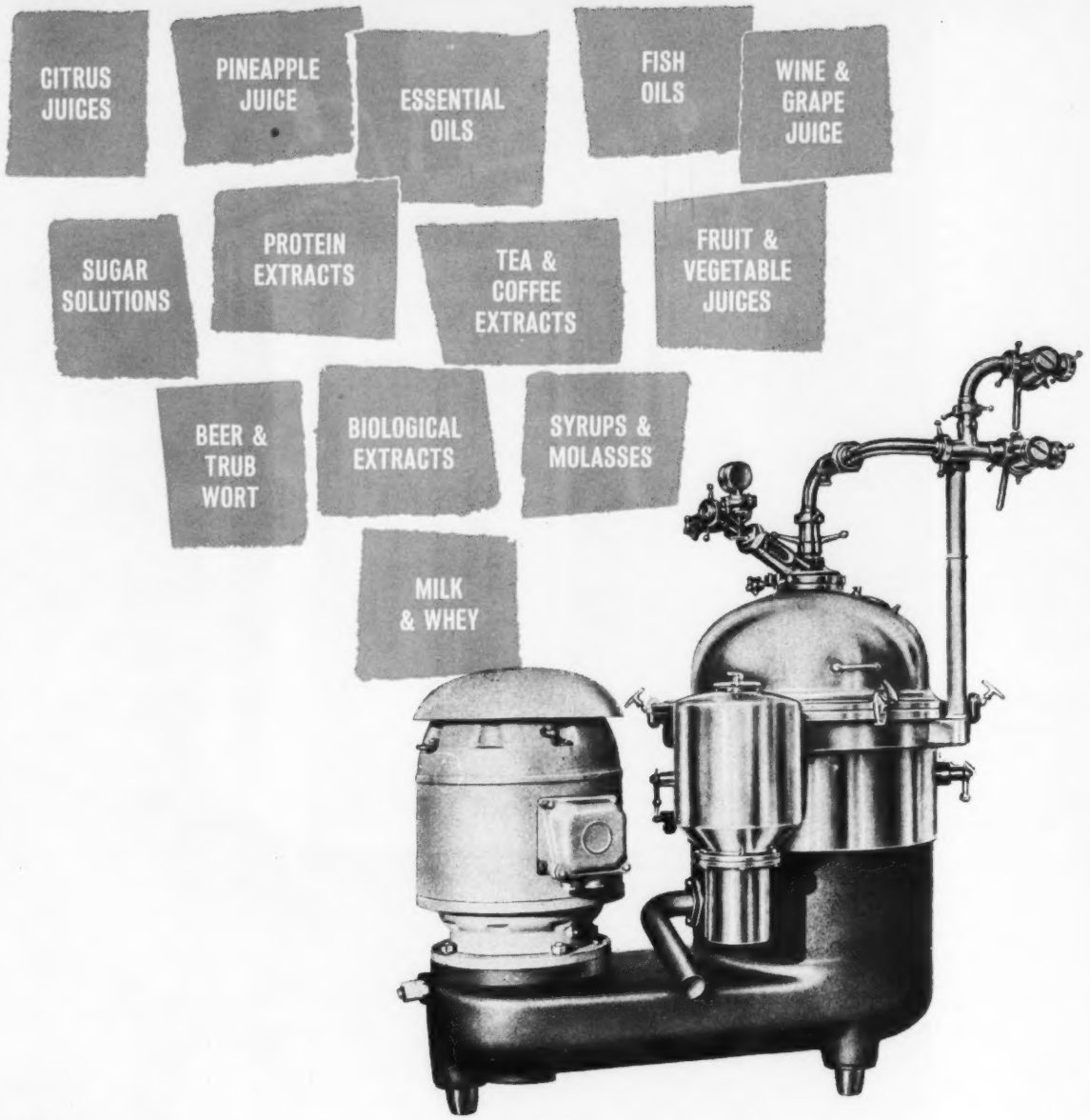
FDA officially stops safrole use; industry had already dropped it

Safrole is a "weak hepatic carcinogen." This is the finding of a special scientific committee appointed by HEW Secretary Arthur S. Flemming.

FDA has accepted the committee's finding and has taken action to stop the use of safrole or oil of sassafras in foods and beverages. The agency will formally deny any extension of the effective date of the Food Additives Amendment for these items. The action is academic, however, since the beverage industry already has voluntarily discontinued use of safrole. Its major use had been in root beer.

Following warnings to the industry by the American Bottlers of Carbonated Beverages, FDA surveyed 3200 bottlers

continued on page 21



Why are so many food processors specifying "Big Sam"?

Because "Big Sam" gives them *continuous* high capacity clarification . . . while protecting delicate flavors, true colors, nutritional values. "Big Sam's" sanitary design—stainless steel with smooth polished surfaces throughout hood, sludge discharge and all product contact areas—prevents contamination and "entrapment" of food particles. By replacing outmoded batch methods with fully automatic around-the-clock operation, they have cut costs, increased profits. Chances are "Big Sam" will do the same for you . . . ask for information on the WESTFALIA model SAMN-15037 Automatic De-Sludger.

WESTFALIA SEPARATOR | CENTRICO INCORPORATED

75 WEST FOREST AVENUE, ENGLEWOOD, NEW JERSEY • PHONE LOWELL 9-0755
WESTERN DIVISION: 3315 CAXTON COURT, SAN MATEO, CAL. • FIRESIDE 5-7065

7296 on Reader Service Slip.

continued from page 19

and suppliers and found that stocks had been dumped and products recalled from the market by all but 10 of the bottlers. Pressure to follow suit was applied to these 10 and FDA is now satisfied that neither safrole nor oil of sassafras is now being used by the industry and it announced this when it announced the ban on safrole.

Deputy Commissioner John L. Harvey praised the voluntary action to stop using the products as soon as their safety was questioned, without waiting for a formal order. He called it an "outstanding example of industry cooperation in the adminstration of the new food additives amendment for consumer protection."

Preliminary hearings on orange juice standards slated for Jan. 16

Objections to the proposed orange juice standards cannot be resolved without a public hearing, FDA feels. That hearing, on new standards for commercially packed orange juice products including undiluted and concentrated juices, will be held at 10:00 a.m, Jan. 30, in the main auditorium of the HEW building.

Persons who plan to present evidence at the hearing are urged to attend a prehearing conference for simplification of proceedings and scheduling of witnesses. That hearing is set for 10:00 a.m., Jan. 16, in Rm. 5131.

Among the matters to be discussed are these:

1. Whether the label designations called for by the standards constitute the common or usual names for the several products, and if not, what are the common or usual names?

The proposed names were as follows: orange juice, pasteurized orange juice, canned orange juice, sweetened pasteurized orange juice, canned sweetened orange juice, concentrated orange juice, sweetened concentrated orange juice, reconstituted orange

Cherry-Burrell knocks the wind out of peanut butter

It's a peanut's lot to be crushed, cracked, crumpled and thrown at umpires. But after they're made into peanut butter, they're given the treatment of their lives to remove air from the product. Any air that's left affects flavor and short-fills jars. One Eastern processor needed a more effective method of deaerating peanut butter. He asked Cherry-Burrell to solve the problem.*

Cherry-Burrell engineers studied the situation and recommended a modified vacuum-pressure Round Processor. A special disperser injects a thin film of peanut butter into the processor, exposing trapped air to the vacuum. Specially designed agitators promote faster heat transfer and float trapped air to the surface. Unique surface breakers allow air to escape and to be removed by the vacuum. Now the manufacturer's peanut butter stays flavorful in the jar, and each jar is filled full every time.

Highly trained technicians will test your product without obligation in a Cherry-Burrell laboratory. They will show you how Cherry-Burrell food processing equipment can help you improve your operation and profit position. Your specialists are invited to participate in the testing. Call or write Cherry-Burrell today.

**Case history on request.*

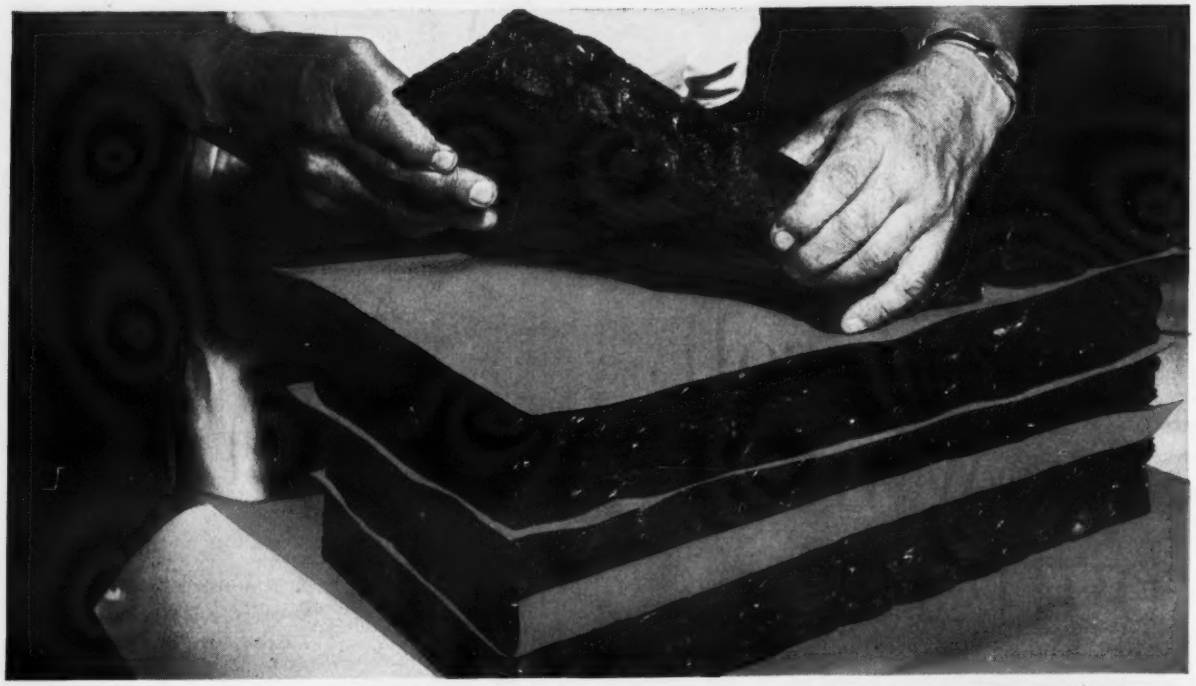
EQUIPMENT FOR HOMOGENIZING, HEATING, COOLING, FLAVORIZING, STORING, SEPARATING, FREEZING, MIXING, PACKAGING AND CONVEYING. WRITE FOR YOUR FREE CATALOG.

CHERRY-BURRELL CORPORATION
CEDAR RAPIDS, IOWA

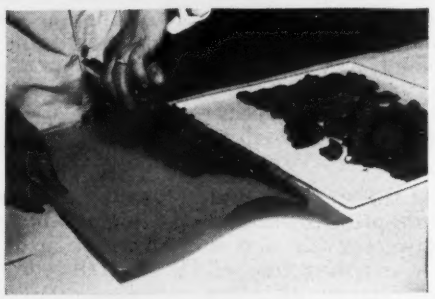
7297 on Reader Service Slip.

SILICONE NEWS from Dow Corning

Such Sweet Parting



Silicone Coatings Speed Unpacking, Reduce Waste, Step Up Production



Dates, candy, sweet rolls . . . will always be sticky, but that's no problem in packaging now that Syl-off® coated papers are readily available. Syl-off silicone paper coatings provide stickproof surfaces to a wide variety of food packaging materials and in-plant processing aids — kraft, parchment, glassine, boxboard, drums, bags, interleaving liners — permit quick, easy and complete removal from even the stickiest food products.

Food grade Syl-off coatings don't migrate, don't contaminate, don't transfer . . . and the use of paper coated with these silicone anti-adhesives to package foods is in compliance with provisions of the Food Additives Amendment of 1958.

For labels, too. As backing for labels, price stickers, banners, decals, and similar pressure-sensitive items, Syl-off coated paper peels free with ease — eliminates tearing, cuts waste, saves time.

Benefits you . . . whether you be packager or user. Syl-off coated papers come away cleanly and easily from the stickiest products — save time and money — help create repeat sales. Everyone gains.

What's your sticky problem? Will Syl-off solve it? Write today for more information and complete list of Approved Sources for Syl-off coated wrapping papers, bags, containers, drums, and processing aids with Syl-off coatings. Address Dept. 3913.

For most efficient foam control in food processing, it's Dow Corning Silicones, too. Send for a copy of the new manual "ABC's of Defoaming".

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

7298 on Reader Service Slip.

juice, and sweetened reconstituted orange juice.

2. Whether certain optional ingredients should be permitted in the various standardized products, and if so, in what amounts and how should these ingredients be described in the standard and declared on the labels.

These include the following: tangerine juice, juice from "sour" oranges, orange oil, orange essence, orange pulp, artificial sweeteners, nutrient sweeteners, orange juice concentrate, reconstituted orange juice, liquid sugar sirup, and liquid invert sirup.

3. Whether certain other restrictions on composition of the products and their methods of manufacture, and the label statements called for by the standards, are necessary for preventing deception and promoting honesty and fair dealing in the interest of consumers. For example, should a water extract of pulp from which juice has already been extracted be permitted in concentrated orange juice, and if so how should the product be labeled?

Compiles official methods of analysis for foods, etc.

The ninth edition of *Official Methods of Analysis* for foods, food additives, pesticides, feeds, fertilizers, etc., has been published by the Association of Official Agricultural Chemists.

The 832-page compilation is the primary source of methods of analysis used by FDA, USDA and other federal and state governmental law enforcement agencies in the United States and throughout the world.

Methods are used in law enforcement work because the extensive checking they have undergone to qualify for adoption by the Association gives them a high degree of reliability for use in developing court evidence to prove violations of the law.

Book is available for $17.50 from the Association of Offical Agricultural Chemists, Box 540, Benjamin Franklin Station, Washington 4, D. C. END

Additive Risk

Aired at Food Protection Committee's Symposium

"It would appear that the basic problem before the food, chemical and agricultural industries is to convince the public that governmental controls and administration should not be concerned solely with the elimination of risk, but rather with a judgment of risk vs gain."

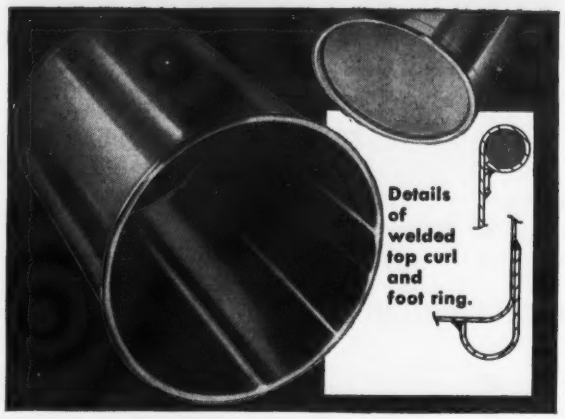
The preceding statement summarizes very nicely the remarks of a distinguished list of speakers at the symposium on *Science and Food* sponsored by the Food Protection Committee of the National Research Council. It was made by Dr. David H. Dawson, a vice president of the Du Pont Company.

Dr. Dawson pointed out that: "We must not, and really cannot, eliminate risk. We should be trying only to eliminate those risks which are not consonant with potential benefits. And we should carefully avoid segregating the two considerations.

"Basically any consideration of the extent of risk without simultaneous evaluation of the potential benefit is, I submit, in grave danger of effectively preventing progress, or at least ensuring that it be achieved distressingly slowly.

"The problems involved in increasing food supplies faster than population growth are of such magnitude that we need to accelerate, and not hinder their solution . . . public interest demands that governmental action be based on a balanced judgment of risk vs benefits to society."

Other speakers on the symposium were: Dr. D. W. Bronk, President National Academy of Sciences — National Research Council; Dr. W. J. Darby, Chairman of Food Protection Committee; Dr. J. G. Harrar, Vice President, Rockefeller Foundation; Dr. C. G. King, Executive Director, The Nutrition Foundation; Dr. Nevin S. Scrimshaw, Director, Institute of Nutrition for Central America and Panama; Dr. Charles S. Davidson, Thorndike Memorial Laboratory, Boston City Hospital; Dr. R. Blackwell Smith, Jr., President, Medical



Pass any sanitarian's scrutiny!

SEND FOR NEW BULLETIN 55

Hackney stainless steel food containers have a seamless cupped bottom section... crevice-free construction inside and out. Exceptionally strong, with open end curled over a steel reinforcing rod. Sturdy steel foot ring.

No container is easier to clean and keep clean. Sizes: 30 and 55 gallons. Covers available.

Hackney MILWAUKEE

Pressed Steel Tank Company

Manufacturer of Hackney Products

1459 South 66th Street, Milwaukee 14, Wisconsin

Branch offices in principal cities

CONTAINERS AND PRESSURE VESSELS FOR GASES, LIQUIDS AND SOLIDS

7299 on Reader Service Slip.

Use the Guaranteed Original M.S.G.

AJI-NO-MOTO®

Prevent "flavor loss". Use AJI-NO-MOTO®, the original pure Mono-Sodium Glutamate, to bring out the *full, natural flavor* of all your foods. Always reliable for uniform quality. That's why today's leading food packagers and processors specify AJI-NO-MOTO® *You* should, too! Write for details:

AJINOMOTO COMPANY OF NEW YORK, INC.
30 Broad Street, New York 4, N. Y.

7300 on Reader Service Slip.

WHO SWIPED PAGE 43 ?

D'ja ever pick up a copy of FOOD PROCESSING with an article torn out . . . or even worse, HALF an article torn out?

It's liable to happen when copies are routed around your plant.

You can avoid this annoyance by getting your own copy of FOOD PROCESSING each month. It's easy and there is no charge. Just fill in the subscription request form opposite the inside back cover.

College of Virginia; George P. Larrick, Commissioner, Food and Drug Adminstration; C. G. Mortimer, Chairman, General Foods Corporation.

The papers presented by the speakers will be published as Proceedings of the Symposium. For a copy address: The Food Protection Committee, 2101 Constitution Avenue, Washington 25, D.C.

plants companies personalities

Merck Chemical Division of **Merck & Co., Inc.** is spending $2 million to double productive capacity of its monosodium glutamate plant in Danville, Pa. Completion of the expanded facilities is scheduled for mid-1961.

Kitchens of Sara Lee, Inc., Chicago, has appointed **W. Wayne Wittenberger** chief engineer. He had been research and development consultant for Baker-Perkins, Inc., Saginaw, Mich.

Wittenberger

Dodd

Edward M. Dodd has been elected a vice president of **Diamond Crystal Salt Co.,** St. Clair, Mich. Assistant to the president, Dodd had been vice president in charge of production with Jefferson Island Salt Company prior to its 1957 acquisition by Diamond Crystal.

Campbell Soup Company has acquired Pepperidge Farm, Inc., by means of exchange of stock worth around $28 million, and will operate Pepperidge under present management as a wholly owned subsidiary. Headquartered in Norwalk, Conn., Pepperidge Farm operates six plants, located in Norwalk, and in Downington, Pa., and Downers Grove, Ill.

In other Campbell news, the company has made two grants

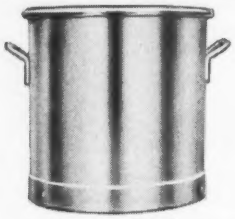
REDUCED PRICES ACROSS TH WEA

Here are high-quality food and materials handling equipment items made by famous Wear-Ever Aluminum, Inc. Here are prices on quality aluminum items nobody can beat—on *everything*, not just one or two specials. Durable aluminum alloy gives you light weight and longer service life. With Wear-Ever, you're assured of cleanliness—no seams to catch dirt (or small parts). Rounded corners make for instant emptying—flared rims protect hands.

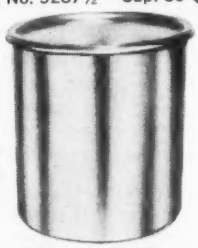
Call your Wear-Ever salesman now for the whole wonderful, low-cost story

INGREDIENT CONTAINERS

Cat. No. 5284 Cap. 4 Gals.
Cat. No. 5286 Cap. 6 Gals.
Cat. No. 5289 Cap. 9 Gals.
Cat. No. 5294 Cap. 14 Gals.



(Stacking Type)
Cat. No. 5287½ Cap. 30 Qts.

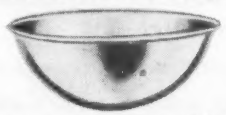


(Stacking Type)
Cat. No. 4381 Cap. 4 Gals.
Cat. No. A4381 Alumilite* Finish
*Trade Name of Aluminum Company of America

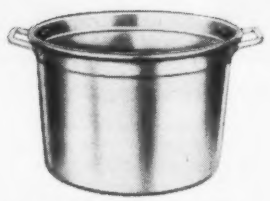
COVER Cat. No. 4190 10¹³⁄₁₆" Outside Dia.

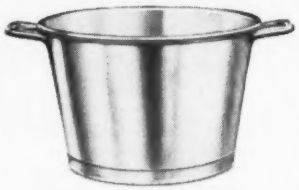
MIXING BOWLS

Cat. No. 5248 Cap. 5½ Qts.



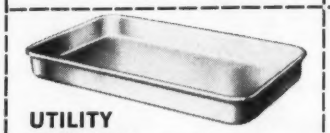
Cat. No. 5249 Cap. 16 Qts.
Cat. No. 5250 Cap. 21 Qts.





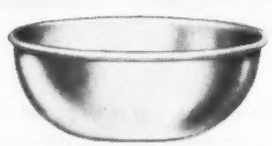
TUBS

Cat. No. 5217 Cap. 40 Qts.
Cat. No. 5218½ Cap. 36 Qts.
Cat. No. 5219½ Cap. 65 Qts.
Cat. No. 5417½ Cap. 56 Qts.



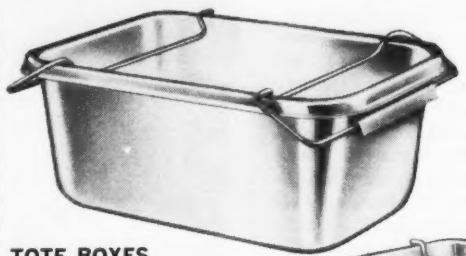
UTILITY TOTE PAN Cat. No. 4489
Size Top Outside 29¹³⁄₁₆" x 17²⁹⁄₆₄"

STACKING TOTE PAN
Cat. No. 4504
Inside Dimensions
20⅜" x 15⅜" x 4⅜"

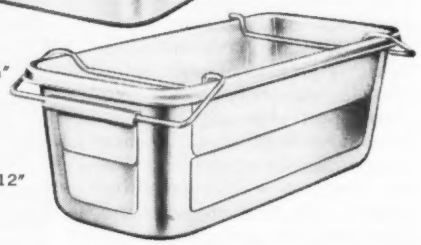


ICING BOWLS

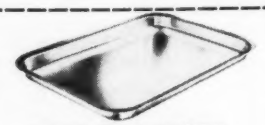
Cat. No. 5242 Cap. 4 Qts.
Cat. No. 5244 Cap. 6½ Qts.
Cat. No. 5245 Cap. 11 Qts.
Cat. No. 5246 Cap. 19 Qts.



TOTE BOXES
Cat. No. 4502
23⅞" x 17¹⁄₁₆" x 10⅜"



Cat. No. 4500
34⁷⁄₁₆" x 16⅞" x 12"



TOTE BOX COVER
Cat. No. 4502C 15⅞" x 21¼"

TOTE BOX RACK
Cat. No. 4497 10⅛" x 28⅝" x ⅝"

TOTE BOX DOLLIES
Cat. No. 4498 21" x 13⅝" x 5"
Cat. No. 4499 30¼" x 11¾" x 5"

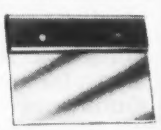
STIRRING PADDLES
Cat. No. 5729 —45" Overall Length
Cat. No. 5756 —53" Overall Length

FROSTING SPATULA
Cat. No. 6606S
Blade 6½" x 1½"

BONING KNIFE
Cat. No. 6418SC Blade length 6"

BUTCHER KNIFE
Cat. No. 6448 Blade length 8"

DOUGH CUTTER



Cat. No. 6214SR Blade 6"x 3"

THE BOARD-UNTIL MARCH 31

WEAR-EVER Aluminum food and materials handling equipment

UNDERCOUNTER BINS

Cat. No. 5500 Cap. 38 Gals.
Cat. No. 5524 Cap. 30 Gals.
Cat. No. 5528 Cap. 27 Gals.

DRUMS

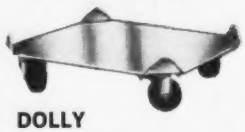
Cat. No. 5530 Cap. 30 Gals.
Cat. No. 5530½ Cap. 30 Gals.
Cat. No. 5550 Cap. 50 Gals.

SLIP-OVER TYPE DRUM COVERS

Cat. No. 5552 —Fits 50-Gal. Drum
Cat. No. 5532 —Fits 30-Gal. Drum

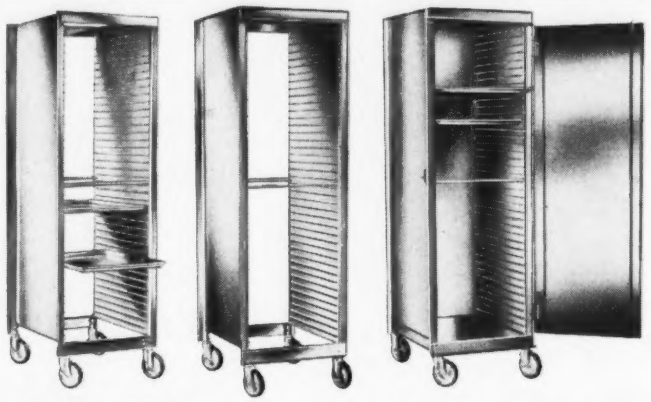
HINGED TYPE COVER

Cat. No. 5551— Fits 50-Gal. Drum
Cat. No. 5531— Fits 30-Gal. Drum



DOLLY

Cat. No. 5539— For No. 5530 and 5530½ Drum
Cat. No. 5540— For No. 5550 Drum

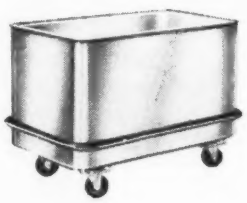


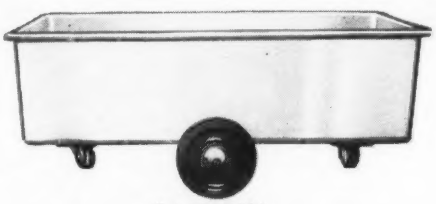
PORTABLE RACKS All 71⅞" x 20⅝", hold No. 5300 series pans

Cat. No. 5910 26⅝" Depth, 40 pans
Cat. No. 5912 (Closed) 27⅜" Depth, 39 pans
Cat. No. 5911 26¹¹⁄₁₆" Depth, 39 pans

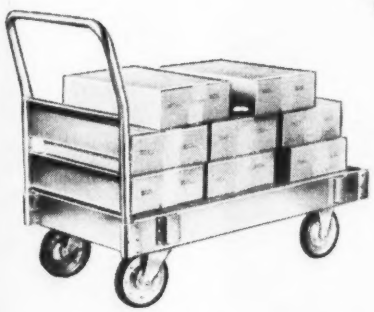
TRUCKS

Cat. No. 5462
29" x 17¼" x 21"
Cap. 4.33 Cu. Ft., 225 Lbs.





Cat. No. 5464
63⅛" x 29⅛" x 25" Cap. 14 Cu. Ft., 1000 Lbs.



Cat. No. 5465
Cap. 1000 Lbs.
47" x 23"

Order today! Call your Wear-Ever representative for full details; or fill out and mail coupon below.

Wear-Ever Aluminum, Inc. **1-FP**
Food Service Equipment Division
Wear-Ever Building
New Kensington, Pa.

Gentlemen: please send me your catalog on Food and Materials Handling Equipment.

Name_____

Address_____

City_____ Zone_____ State_____

Firm Name_____

wear-ever

ALUMINUM, INC., NEW KENSINGTON, PA.

7302 on Reader Service Slip.

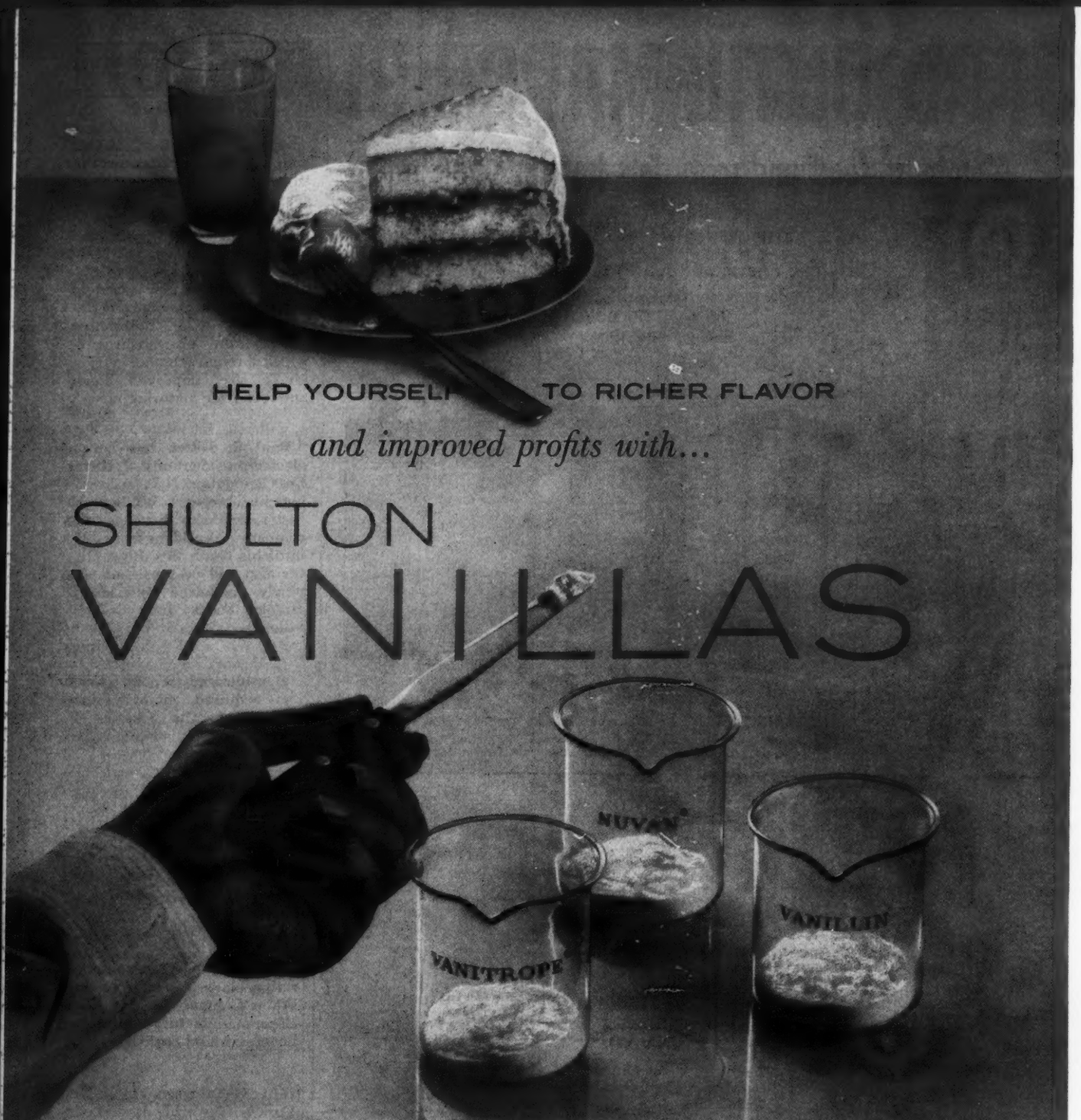
to universities (a $1 million unrestricted grant to M.I.T., and a $189,800 grant to the University of Wisconsin to complete the genetics research building); announced plans to construct a 141,000-sq-ft food processing plant near Melbourne, Australia, and to obtain bids for a new plant in Mexico; and announced development of an outsanding new strain of mushrooms, which provides higher yields, larger size, improved flavor and a shorter maturing period.

Paul J. Ritter has been elected president of **P. J. Ritter Co.**, Bridgeton, N.J., succeeding his brother, William H. Ritter, Jr., who served as the company's president from 1936 until his death this June. Ritter also will be president of a newly acquired subsidiary, Brooks Foods, Inc., Collinsville, Ill.

Consolidated Foods Corp. has acquired majority-stock control of **The Charles E. Hires Co.**, Philadelphia, the nation's oldest and largest root beer manufacturer, which conducts its operations through eight company-owned plants and a network of approximately 400 independent franchised bottlers in the US and abroad. Hires will continue operations under present management.

Consolidated Foods Corporation plans to acquire **Shasta Water Company** of San Francisco, manufacturers of canned beverages and fruit flavors.

At **Henningsen, Inc.**, New York City, world's largest egg-processing company, **Victor W. Henningsen**, has been elevated to the newly created position of board chairman, and **Victor W. Henningsen, Jr.**, to the presidency. In other executive appointments, **Philip S. Kemp** and **Dr. Dwight H. Bergquist** have been named vice presidents—the former responsible for production facilities and the latter continuing as director of Central Laboratories.



Imagine the classic flavor of the cured vanilla bean...and you have defined Shulton's true-to-nature vanillas. Shulton's VANILLIN USP is a standard for quality and blendability. VANITROPE® (up to 25 times stronger than Vanillin) also enhances flavors, gives you greatest economy. Now available are versatile NUVANs®... blends of Vanillin and Vanitrope... so adaptable for quality vanilla effects, and even more economical than Vanillin. Whether it's chocolate—cookies—ice cream—cakes...you can make it better with Shulton vanillas. And save up to 50% or more in flavoring costs. Why not write for information and samples today?

SHULTON FINE CHEMICALS Division of Shulton, Inc. • 630 Fifth Ave., New York 20, N.Y. • Circle 5-6263

Making good products better—through research

For more information on product at left, circle 7303 see information request blank opposite last page.

THE MAGAZINE OF APPLIED TECHNOLOGY
FOR MEN WHO MANAGE
FOOD PROCESSING
JANUARY 1961
VOL. 22 NO. 1

E. A. OLSON
Executive Vice President
Agricultural Group
Archer-Daniels-Midland Company

C. W. BADENHAUSEN
President
P. Ballantine & Sons

THEODORE O. HOFMAN
President
Borden Foods Company
Division of The Borden Company

G. W. CRABTREE
Vice President — Operations
Campbell Soup Company

R. W. MOORE, JR.
President
Canada Dry Corporation

A. C. SCOTT
Vice President — Production
Curtiss Candy Company

HARVEY A. BEFFA, SR.
Executive Vice President
and General Manager
Falstaff Brewing Corporation

H. A. SPILMAN
Vice President
Production and Engineering
Foremost Dairies, Inc.

JOHN C. SUERTH
Vice President — Manufacturing
Gerber Products Company

C. J. TEMPAS
Vice President,
Director of Production
Green Giant Company

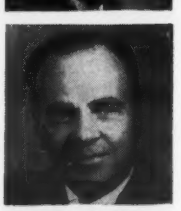
P. GOFF BEACH, JR.
Executive Vice President
Oscar Mayer & Co.

E. A. OTOCKA
Vice President, Operations
National Biscuit Company

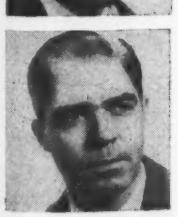
L. G. LEUTWILER
Vice President — Production
Food Products Division
Pet Milk Company

GRANT HORSEY
President
Salada-Shirriff-Horsey

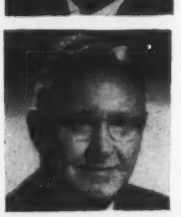
WILLIAM J. SCHEFFER
Vice President
Seabrook Farms Co.



E. D. FLETCHALL
Vice President and Director
Swift & Company



JOHN M. MOON
Plant Manager
Stephen F. Whitman and Son,
Incorporated



ROSCOE G. HAYNIE
President
Wilson & Co., Inc.

Mr. Food Manufacturing Executive...

What is the STATE OF OUR INDUSTRY?

Each year we ask outstanding executives of the food industry to participate in a State of the Industry survey for FOOD PROCESSING's readers.

This year, we went directly to the presidents and top operational executives of 21 of the largest companies in the food industry* — representing nearly every major area of food manufacture — and asked them three questions of the greatest current interest:

1) What is your company's planning with regard to near-term capital expenditures? Has the current unsettled economic climate had any effect on your plans?

2) What major production problem or problems does your company or your branch of the food industry face in 1961?

3) What outstanding developments in food production do you look forward to in the near future?

The staff-prepared presentation on the following four pages highlights highly pertinent excerpts from the executives' replies — effectively summarizing the state of America's food industry as we go to press.

THE EDITORS

*Only 18 of 21 executives are represented in the photos above. Missing are Baxter of Hunt Foods; also an executive of a large milling company, who prefers to remain anonymous. General Foods sent a statement representing over-all corporate policy.

Capital Expenditures? "Continue or even increase them" say all executives.

Box Score of Executive Thinking

Green Giant Company
C. J. Tempas, Vice Pres., Dir. of Prod.

"Current capital expenditures will be the highest in four years, as necessary to promote lower operating costs and highest consistent quality. The current unsettled economic climate forces us to rig the business ship well for good sailing. *This is no time to tie it to the dock.*"

National Biscuit Company
E. A. Otocka, Vice Pres., Operations

". . . not altering contemplated program for capital expenditures. Indeed, the present or future economic climate would have to be drastically changed to alter plans that we have in various stages of development, design or building."

Canada Dry Corporation
R. W. Moore, Jr., President

"No important change in scheduled normal expenditures in the U.S. covering equipment replacement, equipment modernization and increased capacity."

Borden Foods Company
Division of The Borden Company
T. O. Hofman, President

"Recession or not, people will continue to eat . . . (and) industry must plan for growth to give them the food they need . . . at lowest possible cost. For these reasons, Borden Foods will concentrate expenditures over the near term on projects which will increase efficiency and lower costs; however, substantial sums will continue to be spent . . . on research and development of new products and new processes and equipment."

Salada-Shirriff-Horsey
Grant Horsey, President

"The current unsettled economic climate has had no effect on our company's planning. We are in the midst of a long-range program of development and diversification, and it is our policy to plan each step with a realistic consideration of the important relationship between earnings and basic equity. Now, as in the past, we keep capital expenditures under careful control; wherever possible, we finance out of current earnings. We regard capital expenditures as a significant part of sound business planning, but not under any circumstances a means to speculation."

Wilson & Co., Inc.
Roscoe G. Haynie, President

"Our company is planning to maintain (capital expenditures) at levels at least fully comparable with recent years."

Swift and Company
E. D. Fletchall, Vice President

"Capital expenditures for construction of new facilities, modernization of existing facilities and equipment and for other purposes probably will continue at about the same level as in the past several months. As a matter of fact, the demands of our business are such that our capital expenditure program should be maintained."

Pet Milk Company
L. G. Leutwiler, Vice Pres., Production
Food Products Division

"Pet Milk Company plans no cut-back or change in its continuing expansion and modernization programs, or in its capital expenditures generally."

Oscar Mayer & Co.
P. Goff Beach, Jr., Exec. Vice Pres.

"Capital expenditures will continue at a high level. To help overcome the problem of higher costs and resultant profit squeezes, we must continue to invest in improved production methods and increased research activities."

Foremost Dairies, Inc.
H. A. Spilman, Vice Pres.,
Prod. & Engineering

"Foremost's near-term capital expenditures program generally has been conservative. Current planning for the next five years contemplates substantial increases in capital expenditures for mechanization and plant replacement and expansion, with 1961 expenditures limited to a moderate increase over such expenditures of the past few years."

Gerber Products Company
John C. Suerth, Vice Pres., Manfuacturing

"In regard to near-term capital expenditures, we are following a program of purchasing and installing equipment with increased efficiencies, improved processing techniques and yields where we can enjoy a quick return on our investments. This is a matter of

Some say emphatically YES . . . but sometimes for different reasons!

Concerning Capital Expenditures

consolidating our present position . . . The current unsettled economic climate has really had little or no effect on our capital expenditure programs. We have the utmost confidence in our products and in the future."

"The current economic climate should, in itself, provide the stimulus for expenditures leading to revised or entirely new equipment and improved methods that may lower costs and improve product quality of candy products."

Curtiss Candy Company
A. C. Scott, Vice Pres., Production

"We are gearing not only to maintain our share of the frozen food market, but to increase it. For this purpose, we are currently expanding existing production and storage facilities. We are also planning to add strategically located plants." (Mr. Scheffer also notes, however, that capital investment requirements will tend to increase, making it more difficult for the small operator to remain competitive.)

Seabrook Farms Company
William J. Scheffer, Vice President

"We are planning in 1961 on completing and occupying a new 400,000-sq-ft plant. While the current economic climate is certainly unsettled, our confidence in the basic health of the economy caused us to continue with our plans."

Stephen F. Whitman & Son, Inc.
John M. Moon, Plant Manager

"A plant expansion program involving total capital investment in excess of $10 million was recently (October 1960) begun here in Newark, and will be completed in about 2½ years . . . The principal features of the new construction will provide for handling of all Ballantine draught, bottle and canned beer and ale through new and expanded packaging, warehousing, shipping and transportation facilities . . . to meet both present and future demands for Ballantine beer and ale."

P. Ballantine & Sons
Carl W. Badenhausen, President

"In answer to the first part of your question, Falstaff's (sizeable) Galveston expansion program reflects our plans with regard to near-term capital spending. And, in answer to the last question, the current unsettled economic climate has not had any effect on these plans."

Falstaff Brewing Corporation
Harvey A. Beffa, Sr.,
Exec. Vice President and General Manager

"Our company is embarking upon the largest capital expenditures program in its history in the coming year. We are adding new plant capacity, as well as making investments in process and equipment improvements. Our aggregate expansion represents a commitment of $15 million. It is our belief that those products which fill the real needs of our growing population, when produced and priced right and marketed vigorously, will continue to be in good demand."

Hunt Foods and Industries, Inc.
Ralph F. Baxter, Vice Pres., Operations

"ADM has budgeted $26 million to capital spending in the next two years. We have not changed those plans because of current economic conditions. Included . . . is the ADM Chemical Center now under construction at Peoria, Ill., and a new Research Center at Minneapolis."

Archer-Daniels-Midland Company
E. A. Olson, Exec. Vice Pres.,
Agricultural Group

"We expect to spend $24 million for capital improvements in the U.S. and other countries in the 1960-61 fiscal year. This amount represents a 20 per cent increase over expenditures for plant, equipment and foreign investment during the preceding year."

Campbell Soup Company
G. W. Crabtree, Vice Pres., Operations

"As recently announced, General Foods Corporation is planning to spend approximately $50 million for capital expenditures during the fiscal year ending March 31, 1961. *This is an all-time high!*"

General Foods Corporation

Production Problem — More output, better products

"We must use every tool at our disposal to increase productivity and reduce costs, "says Tempas of Green Giant. Specifically — "objectively scrutinize and reduce or eliminate unprofitable items and locations so the consumer can continue to buy highest quality processed food at a reasonable price."

"Each increase in wage rates means an automatic increase in production costs *unless* a program can be developed that will assure improvement in plant efficiency," warns Haynie of Wilson and Co. Need is both for equipment changes and for improved training and supervision to develop a more skillful work force.

Beach of Oscar Mayer puts it even more bluntly: "If cost of labor, supplies and services continues to increase at its customary annual rate, it will be *the* major problem for the meat industry during 1961. The industry, highly competitive and always plagued with too-thin profit margins, must find ways to check increases in direct labor and overhead costs if it is to become healthy enough to reinvest in its own future." Recommendations — greater productivity through new and improved production methods; also improved cost accounting, pricing, merchandising and consumer service; also intelligent wage negotiating.

From the milling industry, a major producer also producing a diversified product line advises: keep rate of productivity increase ahead of or no less than wage increase! How? Partly through using new high-speed and electronic equipment that has not been entirely perfected. Then — make best use of the equipment by developing first-line supervisory personnel and production management personnel.

Whitman is faced with the above-type problem. Says Plant Manager Moon: (Our immediate problem) . . . "is setting up production processes in a new plant, and the longer range and continuing problem of operating a far more integrated series of processes than we have ever dealt with before."

"Profit squeeze" is echoed by Suerth of Gerber, who looks to greater productivity through better utilization of present equipment and introduction of new machines. "We have completed a number of studies on equipment and material utilization in 1960, and these will be put into practice in 1961, for considerable savings." He also interjects a new element — distribution costs — and need for continued efforts in such areas as unitized handling.

Equipment is a major concern of National Biscuit's Otocka: "If we fail to recognize the necessity to re-equip our bakeries for increased efficiency, and falter in efforts to carry on intensive manufacturing research, we can only hope to lose in the competitive race!" He wisely notes that increasingly complex manufacturing operations call for new and better personnel training techniques.

But the problem may not be solved so easily, for, as a milling company executive darkly notes: "There still remains the matter of dealing with increased resistance from labor toward increased productivity."

Scheffer of Seabrook Farms cites ever-increasing product refinements demanded by the competitive market, further upping production costs. He introduces still another cost "additive" — the recently intensified chemical residue and additive problems, and the publicity given the "AFDOUS Temperature Code" which, in its implications, also has added to increased costs. He looks for: 1) intensified methods and process improvement and control in the plant; 2) improved planning and scheduling of warehousing and distribution — with emphasis on low-temperature control; 3) intensified agricultural research.

The new temperature-control regulations also are seen by Pet Milk's Leutwiler as forcing frozen products to be kept in stock longer . . . "in order to make certain they reach zero degrees before leaving the plant" . . . and also

Future Developments — What major technological

". . . a continuing, relentless program of quality control, — (for example) in time-cycle brewing, modern filtration, etc. — are the answers" states Badenhausen of Ballantine.

Falstaff's Beffa looks to additional research and development in packaging leading to convenience innovations — for example, something that would permit greater draft beer consumption. Not surprisingly, in view of Falstaff's need to up production, he believes "research should continue toward a 'continuous brewing process,' " 'batch method.'

The continuous processing approach also appeals to Otocka of National Biscuit. In fact, he bluntly states: "The future holds doom for present batch methods, and we all will welcome the continuous approach, making way for highly integrated manufacturing lines."

"The food processor who can come up with the best ideas to provide the homemaker with more convenience, flavor, freshness, nutritional value and attractiveness will make the most headway in the future," opines Beach of Oscar Mayer. This will have to be achieved, he believes, through an industry-wide increase in research and engineering — provided necessary funds become available through better profits.

This outlook is agreed upon by Scheffer of Seabrook and by the milling executive.

Of specific means to achieve greater convenience, while at the same time reducing production and distribution costs, many feel that freeze-drying holds the outstanding potential. Seabrook, Borden and Salada-Shirriff-Horsey agree. Salada also looks to radiation as a processing development that could become commercially feasible.

General Foods believes both freezing and dehydration have demonstrated merit as preservation processes — either separately, or in combination, as in the company's new line of Birds Eye Frozen Instant Baby Foods.

Moon of Whitman looks to development of ultrasonics for killing insects, use in mixing, possibly for cooking. He expects developments in packaging films for significantly increased shelf life and general protection of foods.

No dramatically different products from those already known and established are expected by Baxter of Hunt Foods, who believes that the industry's outstanding developments in the near future will concern incremental improvements in methods and products. In the medium- or long-range outlook, however, he looks to research strides in such fields as nutrition, medicine and neuro-chemistry. "Where today food processing has its quality objectives defined in terms primarily of taste, color and . . . consistency . . . in the not-to-distant future, specifications may demand freedom from a wide range of substances now not even detectable. We may even foresee the day when the emotional significance of food may become analytically definable and the subject of quality and process criteria."

While Swift & Company points to the possibilities of scientific breakthrough — such as the one which makes possible increased tenderness of all cuts of beef — Wilson's Haynie believes that "developments in food production and processing will likely continue to be evolutionary, rather than revolutionary, and will in-

. . . but hold the line on labor

requiring enclosed truck docks for more temperature protection during loading. He takes note, too, of problems involved in increasing use of pesticides, and feels there should be an all-food-industry effort both to educate all concerned with proper use of these substances and to persuade the Federal government to permit a safe but more realistic level than the current "zero tolerance."

Many avenues of approach to the broad problem are needed, believes Spilman of Foremost Dairies. Included are increasing labor productivity by increased machine capacities, mechanization of materials and products handling, automatic controls, and, in some instances, complete automation of certain processing operations. Consolidating a multi-plant operation has advantages and disadvantages, he feels, in that it sometimes merely shifts the cost burden from the area of capital and operating expense to distribution operations.

In its continuing efforts to produce food items that anticipate the consumers' rapidly rising demands for improved quality, appearance, nutrition, variety and innovation, Campbell Soup is deeply involved in improving every aspect of raw material supply. As example, the company is engaged both in developing an ideal mechanical tomato-harvester and in the tomato variety that is at the same time luscious and easily harvested mechanically.

Hunt Foods, with a product line that requires considerable harvesting by hand, is concerned with human values. As Ralph Baxter puts it: ". . . the world, our country and our society are moving steadily in the direction where gainful employment becomes a fundamental right . . . the direct concern of government and industry, and where the hardships of the seasonal worker are no longer seen as an inevitable by-product of a seasonal crop, but are seen in the context of their social and economic impact. As solution, he recommends a two-point leadership program: 1) extend the processing season and reduce the peak workloads; 2) a responsiveness to the (above-noted) social trend, which still allows for greater efficiency and for maintaining the low price on consumer food products.

The convenience-food theme is struck by Fletchall of Swift & Co., who notes that "the trend is toward production of an increasing variety of more completely processed foods ready or near-ready for serving." Needed — equipment and techniques for producing more convenience items, such as boneless, carefully trimmed and fully cooked meats.

Archer-Daniels-Midland's Olson brings out a new problem involved in processing agricultural commodities — need to maintain an economic balance among primary and by-products. As example, there must be a market for soy oil as well as meal, flour or protein.

Soured sources of sugar supplies is bemoaned by Moore of Canada Dry Corp. However, he believes that "except for an initial period of adjusting to (new) sources, the problem will not be one of major permanent importance."

A cheery note is interjected by Horsey of Salada-Shirriff-Horsey, who says: ". . . our company does not foresee major production problems in specific areas in 1961, but we will continue our policy of trying to develop greater efficiency from all our equipment."

The brewers are happy. Badenhausen of Ballantine and Beffa of Falstaff look forward to the type of problems that nearly everyone would like — meeting constantly increasing public demands for their products. However, it *is* a problem. Beffa notes that despite addition of five plants in 10 years, and an average of 80-85 per cent use of available brewing capacity (probably the industry's highest), they just can't produce enough Falstaff beer. As Badenhausen puts it for Ballantine: "Only a major increase in our capacity to produce and distribute will solve (the problem)."

innovations are on the way?

clude improvements in the lean-fat ratio of various meats and meat products, in their shelf-life and in their consumer convenience.

At Archer-Daniels-Midland, Olson expects a new soy-protein supplement and other new products to find use in the manufacture of new foods and in the growing family of easy-to-prepare foods. He also predicts more diet-control products based on proteins.

During the last fiscal year, Campbell Soup reduced prices on 17 of its 104 products from 2.9 to 12 per cent; there were no offsetting price increases. Making such reductions possible, states Campbell's Crabtree are new developments and applications of automation. Moreover, such improvements will not be restricted solely to the food processing plants, but "can be expected to cover every phase from seeding and harvesting to loading and shipment of finished products."

Technological breakthroughs — accomplished in 1960 in process control, product quality and packaging materials — are regarded by Foremost Dairy's Spilman as forerunners of new processes and methods, and new products which will come into being in 1961 — designed primarily to tap new markets and to provide convenience and low-cost nutrition."

Besides anticipating improved control of product uniformity and considerable savings in labor costs — particularly in the clean-up phase of operations — Leutwiler of Pet Milk believes that one of their most interesting projects during 1961 will be the complete automation of one of their milk processing plants.

While mentioning no specific project, Green Giant's Tempas also looks to "increased automation and controls to consistently produce the uniformly high quality product the consumer demands at reasonable cost."

Further application of automation principles to packaging — a favorite goal of National Biscuit's Otocka — is expected by him to provide consumers with cookies and crackers in a fresher and tastier condition. This also, he points out, "accelerates our interest in new packaging materials and their application."

Agreeing with the likelihood of "a significant advancement or breakthrough in high-speed packaging equipment", a milling company executive also warns: "This will produce another major problem — that of adequate and rapid means of inspection and control."

Also packaging-oriented are Seabrook Farms — "innovations in packaging will obsolete many existing methods and facilities" — and Canada Dry. The latter company's Moore takes note of the continuing interest of the soft drink industry in new sizes and shapes of returnable and non-returnable glass containers, and in packaging in cans. However, with respect to cans, he advises "continuing appraisal of economic factors involved in this relatively expensive form of convenience container (required) to insure its sound, profitable growth in the industry."

Looking to achievement of high quality at lowest possible costs, Scott of Curtiss Candy believes that the ingenuity of all employees should be called upon to effect economies in design, styling and manufacturing. END

Unresolved Additive Problems

ADDITIVES again dominated the annual joint conference of the Food Law Institute and the Food and Drug Administration. At this conference FDA officially announced that it will ask Congress to extend the final date of the additives law beyond next March 6. A report on this announcement will be found in the Food Regulations section, page 13.

Other unresolved additive problems was the subject covered in one of the conference sessions by industry representatives. Moderator of this session, Dr. Bernard L. Oser, President of Food and Drug Research Laboratories, Inc., opened the session with a concise synopsis of these problems. His commentary minus some introductory statements is presented at right.

Two of the speakers discussed in some detail the problems raised by the Delaney Cancer Clause and its administration by the FDA. They proposed that the Food Additives Law be amended to provide for use of a scientific advisory panel as reported by us below.

All of the papers presented at this conference will be published in full in the December and January issues of THE FOOD DRUG COSMETIC LAW JOURNAL published by Commerce Clearing House, Chicago 46, Illinois.

HOWARD P. MILLEVILLE
Editor

Oser Outlines

SUBSTANTIAL PROGRESS has been made toward relieving the doubts and uncertainties which existed a year ago.

Lengthy **time-extension lists** have been promulgated much to the relief of those concerned. Several **GRAS lists** have appeared, though it should be mentioned that most of the latter are still in the "proposed" state. I am sure that more GRAS lists would be welcomed by the food industries and their suppliers.

Official reluctance to apply the GRAS provisions of the statutory definition of food additives more liberally has been disappointing to many. Emphasis has been placed on the "general" degree of recognition rather than on safety. As a consequence insistence on the petition route has led to the filing of so-called omnibus petitions or to petitions which do not contain certain of the statutory requirements,

DR. BERNARD L. OSER
President of Food and Drug Research Laboratories, Inc.

such as reports of toxicological investigations. Some have questioned the validity of regulations which might issue as a result of such petitions.

It would be helpful also if listings of reconfirmed **prior sanctions** could be published, with permission, of course, of those who received them.

While it is not specifically an activity of FDA, there is

Industry Wants

to provide for use of Scientific Advisory Committee in administration of the Delaney Cancer Clause

HOW TO GET FDA to drop its opposition to employing the "rule of reason based on scientific judgment" would now appear to be the objective of industry. That's our interpretation of the suggestions industry spokesmen made at the recent FLI-FDA conference.

Under HEW Secretary Flemming's leadership FDA has taken an extreme position beyond the literal interpretation of the Delaney clause of the 1958 Food Additives Law which reads: ". . . no additive shall be deemed to be safe if it is found to induce cancer when ingested by man or

AT THE FLI-FDA CONFERENCE Dr. Oser opens the session on unresolved problems, which was addressed by: Dr. Richard S. Gordon, Director of Research, Agricultural Chemicals Division, Monsanto Chemical Company; James D. Kittelton, Esq., Secretary of Food Additives Committee, Manufacturing Chemists' Association, Inc.; Dr. Margaret Ives, Senior Research Toxicologist, Research and Technical Department, American Can Company; Joseph D. Becker, Esq., Assistant to Director of Legal Department, Allied Chemical Corporation; Dr. Robert N. Johnson, Chief Chemist, The Kroger Company

Progress and Problems

considerable interest on the part of industry in the development of a **Food Additive Codex** which would contain the specifications for the identity and purity of food grade chemicals. The proposal that the Food Protection Committee undertake the preparation of such a compendium has been under consideration, the main problem being the matter of financing this rather ambitious project.

There has been little discussion lately about the use of **common vs chemical names** or of the possibility of using functional labeling in lieu of either. On the subject of **labeling** there is still some uncertainty as to the distinction between ingredients of foods, whose presence must be declared on labels, and food additives many of which are incidental components.

Progress has been made in the interpretation of the concept of **zero tolerances.** This is now tied to analytical methods of appropriate sensitivity. It would be a decided advantage however if, in each case, the specific method and its sensitivity were made known.

A situation still causing some concern among analytical chemists in industry relates to the criteria of practicability of methods for controlling tolerances. It will be recalled that the difficulty of **analytical methods** mounts the more closely an additive resembles a natural constituent and the more minute its concentration in the food.

Among the most important of the unresolved problems relating to food additives is the interpretation and application of the Delaney clause which excludes cancer-inducing substances. The scope of the **definition of cancer** and the criteria for the evaluation of carcinogenic potential are under active discussion in scientific circles.

There is as yet no agreement regarding appropriate dosage limitations to be used in animal studies nor on the extrapolation of the results of such studies to conditions of use by man.

Among the organizations and agencies that have been exploring these questions are the Food Protection Committee, (which last December issued an important scientific report on "Problems in the Evaluation of Carcinogenic Hazard from Use of Food Additives"), the President's Scientific Advisory Committee (a special panel of which submitted a report to the White House last May), and the International Union Against Cancer, which met recently in Tokyo and is expected shortly to issue its report.

Next month a Joint Expert Committee of the World Health Organization and the Food and Agriculture Organization of the United Nations will meet in Geneva to discuss the **evaluation of carcinogenic hazards** of food additives. Among the questions at issue are whether a substance that induces initially a non-cancerous lesion that is reversible or self-limiting, should be considered a carcinogen if cancer is induced in the test animals only as a result of the excessively high or prolonged dosage under experimental conditions totally unrelated to conditions of use.

One might also ask whether allegedly carcinogenic substances should be outlawed if only suspect, or on the basis of hypothetical evidence, or whether the law should be literally construed, that is that each particular substance must be found to induce cancer before it can be proscribed. END

to Amend Additive Law

animal, or if it is found, after tests which are appropriate for the evaluation of the safety of food additives to induce cancer in man or animal."

We agree with Dr. Richard S. Gordon, Director of Research, Agricultural Chemicals Division of Monsanto Chemical Company also a member of Manufacturing Chemists' Association Committee on Food Additives when he stated:

". . . the net effect is that FDA's interpretation of the Delaney clause beclouds administration of the entire Food Additive Law by creating a climate of extrapolation and requirement for proof of a negative. . .

"Thus the FDA maintained, in the case of the organic arsenicals, that since certain inorganic arsenic compounds had been reported to cause forms of cancer, further extension of the approval of these organic arsenicals could not be allowed even though the compounds in use had been adequately tested insofar as meeting the requirements of the Act. It should be pointed out that in no case have any signs of tumors or even hyperplasias been reported as a result of the chronic administration of the various organic arsenical compounds used in feeds. . .

"Another example which has disturbed many pharmacologists and biochemists in government and industry alike occurred with respect to one of the emulsifiers (Myrj 4S) for use in bread. The proposed use level of the material in question was of the order of 0.3 per cent in the bread or less than 0.05 per cent or one-twentieth per cent of the human diet. Feeding tests were carried out and no untoward effects were observed in animals consuming a diet containing 5 per cent of the addi-

Industry wants to amend additive law continued

tive. (This level, you will note, represents about one hundred times the level proposed for human consumption.)

"It was additionally noted, however, that at *25 per cent* of the animal diet, or *five hundred times* the proposed use in man, a metabolite of the material crystallized out of the urine causing, in approximately 16 per cent of the test animals, kidney stones or material which acted as nuclei for the formation of bladder stones. Administrative clearance for the use of the material in bread was withheld on the basis that the irritation from bladder stones can cause chronic irritation which in turn can lead to bladder tumors, which in turn, may occasionally be malignant. The problem which arises, then, is: under these conditions, should the emulsifier be considered capable of causing cancer or should it be considered a tumorogen? . . .

"Presumably, every chemical known to man can be shown to be irritating at some level, and therefore, could be considered, under one conceivable but hardly logical approach, a potential carcinogen. . ."

In answer to a question regarding Myrj at the end of the Conference, FDA's Rankin, Assistant to the Commissioner stated "A substance is banned under the Delaney clause if it induces cancer. It does not have to be a carcinogen. Therefore Myrj is clearly a cancer producer within the Delaney clause."

At this point Dr. Oser called attention to the recommendation of the Kistiakowsky Report* which he considered especially pertinent to FDA's position on Myrj. It reads:

". . . the enforcing agency must employ the 'rule of reason' based on scientific judgment in order to carry out the intent of the Congress to protect the public from the possibility of increasing cancer risks through the diet."

Elsewhere in the Kistiakowsky Report, in specifically considering Myrj 45 the statement is made that ". . . minute traces in the human diet are not likely to produce bladder cancer, and can be treated as any other toxic material."

To take care of these cases where an honest difference of opinion exists between the petitioner and the FDA, Dr. Gordon proposed that the Additive Law be amended to provide for the use of a scientific advisory panel as recommended by the Kistiakowsky Report. However, he further proposed that the scientific panel not be limited to determining whether or not a series of events is carcinogenic (as it is in the Color Additives Law) but be specifically charged to assist in evaluating whether or not the additive in question would be safe in its intended use.

DR. RICHARD S. GORDON
Director of Research, Agricultural Chemicals Division, Monsanto Chemical Company, also member of Food Additives Committee, The Manufacturing Chemists' Association, Inc.

JOSEPH D. BECKER, ESQ.
Assistant to the Director, Legal Department, Allied Chemical Corporation

Joseph D. Becker, Assistant to the Director of Allied Chemical Corporation's Legal Department also favored the ues of the scientific advisory panel. Since most legal experts have been adversely critical in the past on the usefulness of such panels, his appraisal of the legal angles involved is enlightening.

Thus, he remarks: "There has been, as you know, much criticism of past proposals for scientific advisory committees. It has been pointed out that advisory committees diffuse responsibility for decision, involve unnecessary delay, and, because their role is ill-defined, invite lobbying and other pressures upon their deliberations.

"The brief experience with the aramite and methoxychlor committees (under the Miller Pesticide Law) has done little to rebut these arguments. Indeed, ordinarily they would possess considerable validity. But in the context of the strict rule of the Delaney clause, any device that makes for flexibility should, I submit, be welcomed. . .

"The new Color Additive Law's advisory committee provision is notable in three important respects:

"First, this advisory committee, unlike its cousins in the Pesticide Act and in early versions of the Food Additives Amendment, (which were dropped before it became law) has competence with respect to the cancer issue *only*. It is not free to deal with "any question of fact" raised by a petition or proposal for the listing of a color additive. Thus, in the absence of a properly raised cancer issue, questions about safety factors, analytical methods, adequacy of the testing procedure, and the like, are *not* referable to the advisory committee.

"The second point to be noted about the advisory committee is that, as a matter of the statutory relationship between the advisory committee and the Delaney clause, the advisory committee is without *formal* authority to mitigate the strict Delaney prohibition. The legislative history makes this clear. Congressman Rogers, the sponsor of the advisory committee idea, said this on the House floor:

" 'I would like to emphasize that the provision relating the ad hoc advisory committee does not in any sense modify the effect of the Delaney clause. Cancer producing substances are unequivocally barred as in the food additives amendment. My purpose in recommending that the committee add this provision to the bill was to give added assurance to the petitioner for a color listing that his application would be reviewed by an impartial board of experts . . .'

"This means that it would be futile for the advisory committee to recommend that the Secretary list a color additive that induces cancer in man or animal because the additive is safe at low levels of ingestion.

"What useful function, then, can the advisory committee serve? This brings us to the third point about the advisory committee.

"While the subject-matter jurisdiction (as it were) of the color advisory committee is limited to the cancer issue, and while the limits of the Delaney clause operate upon it, within these limits the advisory committee may deal with 'any matter' repeat 'any matter' arising under the De-

*Report of the Panel on Food Additives to President Eisenhower, May, 1960.

laney clause, 'which requires the exercise of scientific judgment.' That is, once it is properly seized of a Delaney issue the advisory committee's jurisdiction over scientific questions is total.

"It may consider any and all matters toxicological, pathological, physiological, or biochemical relevent to the resolution of the Delaney issue referred to it. It may engage in customary scientific inferences from data, and may deliver its scientific judgment on the basis of the probabilities or possibilities that the data suggest. These very processes inherently contain elements of flexibility.

"After all, the foci of the committee's attention are the statutory words "induce" and "cancer". Each of these words is a vessel that does not contain, but must be filled, with meaning extracted from the data. The decision whether a result has been *induced* is fraught with considerations of remoteness, intervening or extraneous cause, and deficiencies of the experimental method.

"The decision that *cancer* is induced must rest on equally difficult scientific judgments. The point is that an ad hoc scientific advisory committee appointed from outside the government, with a broadly gauged jurisdiction over Delaney issues, is in a position to introduce an element of flexibility into the rigid Delaney system that might well be absent from official administration of the clause.

"Concretely, we have heard discussion of the issue whether *possibly* carcinogenic additives, that is, additives that have remote, indirect relation to malignancy, may be approved. The Kistiakowsky Report regarded these additives, under a "rule of reason", as open for consideration.

"It is here that an advisory committee might conclude, more readily than officials operating in a now sensitive area, that a given additive is possibly carcinogenic but does not induce cancer in man or

Staley's Quality Improvement Pointers

IMPROVED FLAVOR, CRISPER TEXTURE, BRIGHTER SHEEN, *FASTER FINISHING, LESS SHRINKAGE!*

Sweetose supplies the ammunition for bigger sweet pickle profits!

In catsup, Sweetose holds rich red color. Improves gloss and sheen. Enhances flavor.

In jams and jellies, Sweetose brings out true fruit flavor. Improves body. Gives a brighter, appearance and sheen.

Shooting for bigger pickle profits this year? There's no surer, easier way to hit your mark than with Sweetose, Staley's enzyme-converted corn syrup.

How? Crystal-clear Sweetose assures *precise* sweetness control. And because of its higher "penetrating power", Sweetose quickly enters cell structures . . . protects pickles from shrinkage and shriveling.

The result? Perfect, full-size pickles with mouth-watering, balanced sweetness . . . enhanced, zestier flavor . . . firmer, crisper body . . . brighter appearance and sheen.

Whether you process pork and beans, catsup, jams and jellies, or any one of dozens of food items—you can depend on Sweetose to improve the quality of your products. For the complete story of the many in-plant advantages Sweetose gives *while cutting sweetener costs*—see your Staley Representative or write:

A. E. STALEY MFG. CO., DECATUR, ILL.

ATLANTA • BOSTON • CHICAGO • CLEVELAND • KANSAS CITY • NEW YORK
PHILADELPHIA • SAN FRANCISCO • ST. LOUIS

Sweetose®
The original enzyme-converted corn syrup.

7304 on Reader Service Slip.

One of 38 Foxboro Cam-Set Schedule Controllers used to control temperature of fermenting tanks at the Pabst Brewery, Newark, New Jersey.

Foxboro Cam-Set Schedule Controllers protect the uniformity of Pabst Blue-Ribbon Beer

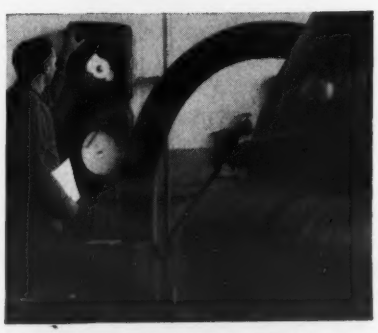
Ever wonder how they do it? Make every bottle of Pabst taste the same, look the same . . . batch after batch after batch. Experienced brewmasters — special yeasts are part of the answer. And strict control over time and temperature of fermentation are the rest.

For this strict control, Pabst Brewing Company, Newark, New Jersey, depends on Foxboro Cam-Set Schedule Controllers.

Here's how they do it. Operator installs proper cam for fermenting cycle, sets controller at "start," and that's it. Then, Foxboro takes over — automatically advancing tank temperature; automatically circulating refrigerant through tank coils when temperature of fermenting wort starts to rise. And when the cycle is complete, the operator has a continuous chart record of the whole process.

Foxboro Cam-Set Program Controllers deliver perfect uniformity, perfect repeatability, batch after batch. No wonder every bottle of Pabst tastes and looks the same.

If continuous temperature control is a problem on your food process ask your Foxboro field engineer about the Cam-Set Controller. Or write for engineering data sheet 208-3. The Foxboro Company, 921 Neponset Avenue, Foxboro, Mass.



Two-case Foxboro Cam-Set Schedule Controllers are used on mash and cereal cookers at the Pabst Brewery. Two-case instrument allows changing charts without touching the cam.

FOXBORO
REG. U.S. PAT. OFF.

7305 on Reader Service Slip.

animal.

"It is obvious that a great deal can depend upon the choice of language in the committee's report. But a favorable report on an additive, issuing from a body of reputable scientists, would undoubtedly be given great weight by administrators . . .

"It is not clear from the legislative history however, whether the limitation of the color advisory committee's jurisdiction to a matter 'which requires the exercise of scientific judgment' is a substantive restriction to scientific issues in contradistinction to, say, economic issues, or whether the phrase is merely a declaration that the Advisory Committee's job is to exercise 'scientific judgment', a phrase that was a shibboleth throughout the legislative consideration of the Delaney clause.

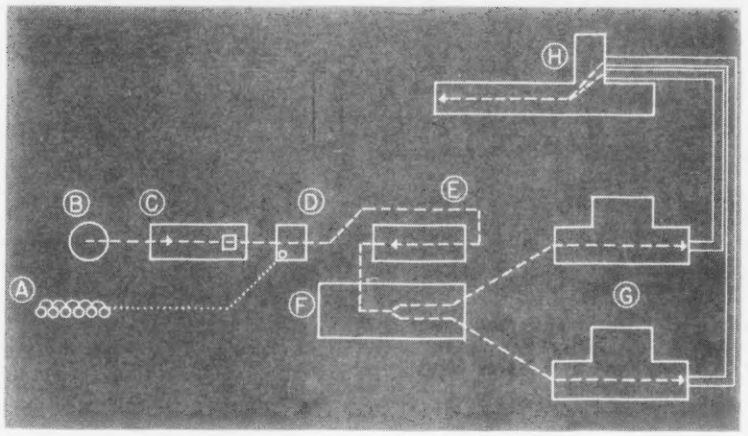
"Those who recall the advisory committee reports on aramite and methoxychlor will be mindful of the role that non-scientific, public policy considerations played in the conclusions of those committees. It would seem that the color additive advisory committee is cut off from these speculations by the "scientific judgment" proviso.

"But the proviso does not stand as a bar to scientific commentary on the validity of the Delaney clause itself. There is a good deal of scientific opinion that thinks poorly of the Delaney clause. If that opinion were reflected in a series of advisory committee reports, the possibility of legislative revision of the Delaney clause would rest on a surer footing . . ." END

Freeze Drying

- **Practical approaches**
- **Equipment roundup**

FOOD PROCESSING'S coverage of freeze drying in the November issue is now available as an 8-page reprint. Single copies available without charge. Address: The Editors, Food Processing, 111 East Delaware Pl., Chicago 11, Ill.



Continuous production line for whipped butter includes: (A) cylinders containing whipping agent; (B) butter cutter, quartering 64-lb cubes of regular butter; (C) two-screw extrusion feeder, extruding butter to state of pumpability, and specially designed pumping system, maintaining steady rate of flow; (D) Votator whipper, fluffing extruded butter to 50 per cent greater volume; (E) new-design Votator scraped-surface heat transfer unit; (F) high-speed Votator print-former-wrapper; (G) twin overwrapping units, combining three prints of whipped butter in half-lb packs; (H) automatic case-packing machinery

New spread that may prove "white hope" of the hard-pressed U.S. butter industry is made practical by remarkable closed automatic system that . . .

Continuously produces whipped butter in conventional print form

WHIPPED BUTTER — 50 per cent more volume; much better spreadability

The three sixth-lb prints of whipped butter at right represent 50 per cent greater volume, but exactly the same half-lb weight as the two quarter-lb regular butter prints

A QUALITY whipped butter in commercial-scale quantities is being produced as a U.S. "first" on a unique, constant-flow production line engineered and equipped by Girdler Process Equipment Division of Chemetron Corp.

Introduced by Frederick F. Lowenfels & Son, Inc., 75-yr-old New York City food processing firm, the "Whipstix" prints are same size and shape as regular butter in bars, but 50 per cent greater by volume — putting three rather than two prints in a half-lb.

According to Lowenfels' president, Fred C. Lowenfels, the whipped product retains the freshness and creamy taste of regular butter. It also spreads more easily and "goes further" because of its greater plasticity and greater volume per lb of weight.

Production flow begins with the cutting of 64-lb cubes of regular butter into 16-lb quarters. These are fed into a two-screw extrusion feeder that extrudes the butter in a state of pumpability. A specially designed pumping system maintains a steady rate of flow, providing constant product input to whipping, cooling and molding equipment — for optimum weight control.

In the next stage, whipping — a "Votator" machine whips the extruded butter to 50 per cent greater volume.

Emerging from the whipper, the butter is cooled rapidly and continuously — assuring uniform, creamy texture — as it flows through the scraped-surface cylinder of a Votator heat-transfer unit.

This equipment incorporates a new-design mutator shaft that increases production capacity of the Votator unit significantly, with reduced power requirements.

Formed into prints, the whipped butter is individually

proved purity!

J. T. Baker

CALCIUM CHLORIDE

U.S.P.

YOU GAIN SECURITY WITH THE PROVED PURITY OF THE U.S.P. GRADE

More and more food processors gain security by specifying J. T. Baker Calcium Chloride, U.S.P. Granular and other fine chemicals made to precise standards of purity.

Every lot of Baker's Calcium Chloride is controlled to conform to all the requirements of the current U.S. Pharmacopoeia. The product is in the form of the dihydrate and is free-flowing for easy handling. Available for scheduled deliveries in truckload or lesser quantities.

MAIL COUPON for information about J. T. Baker CALCIUM CHLORIDE, U.S.P. or other fine chemicals for the food industry.

____ Calcium Chloride, U.S.P. Granular
____ Ammonium Chloride, U.S.P. Granular
____ Ammonium Sulfate, Purified Granular
____ Ferrous Sulfate, U.S.P. Exsiccated
____ Iron, N. F. Powder
____ Potassium Bromate, Purified Powder
____ Potassium Iodate, Purified Powder
____ Potassium Iodide, U.S.P. Granular
____ Potassium Iodide, Calcium Stearate, Purified 90-100% Mixture

Name_____
Firm_____
Address_____
City_____ Zone____ State_____

J. T. Baker Chemical Co.
Phillipsburg, New Jersey

7306 on Reader Service Slip.

Whipped butter continued

End of the "Whipstix" line! Print forming, wrapping and overwrapping operations begin with high-speed Votator equipment (F) that takes whipped butter and forms and wraps it in sixth-lb prints, then feeds to two automatic overwrapping machines (G) that wrap three prints in half-lb packages. Filled packages in foreground are being conveyed to case packer (out of photo at right)

wrapped in parchment — both operations taking place in a high-speed Votator print-former-wrapper that also can handle margarine or regular butter.

First of its kind for whipped butter production, the unit overcomes two major problems in molding and wrapping whipped table spreads: their tendency to expand or "grow" after print is formed, and the difficulty of controlling product flow so that only the desired amount enters each of the forming and wrapping stations.

The freshly formed and wrapped prints then are overwrapped automatically in sets of three in a foil wrap with brand imprint. Final step is automatic packaging of the whipped butter in shipping cases.

According to company president, Frederick C. Lowenfels, the new product has been successfully test-marketed in New York City grocery outlets.

Plans now call for initial quantity production of more than 100,000 lb of "Whipstix" per week, and the marketing area will eventually be extended to the same Baltimore-to-Boston region the company covers with its regular "Hotel Bar" butter. END

Suppliers: "Votator" equipment by Girdler Process Equipment Division of Chemetron Corp., Louisville 1, Ky.
7307 on Reader Service Slip.

Extrusion feeder by C. Doering & Son, Inc., 1375 W. Lake St., Chicago 7, Ill.
7308 on Reader Service Slip.

Overwrapping equipment by Package Machinery Co., East Longmeadow, Mass.
7309 on Reader Service Slip.

Case packaging machinery by Schroeder Machines Corp., New Court Ave., Industrial Park, Box 1123, Syracuse, N.Y.
7310 on Reader Service Slip.

Invitation to try VICO 400

in dry mixes; breads and rolls; sweet goods and coffee cakes; biscuits, muffins; waffles and pancakes, etc.

NOW AVAILABLE . . . A NATURAL INSTANT FERMENTATION FLAVOR . . .

that imparts true yeast-leavened flavor and aroma in chemically leavened baked goods without time consuming dough fermentation.

VICO 400, a unique NATURAL flavoring captures the full spectrum of flavor notes characteristic of natural yeast fermentation.

VICO 400 initiates a new concept of flavor production. It brings out INSTANTLY a true yeast leavened flavor in various baked products, thereby intensifying and improving their taste appeal. It is especially effective with the blander types of chemical leavening agents.

VICO 400 is a dry, highly stable flavoring in powder form, easy to handle and ready for use at any time.

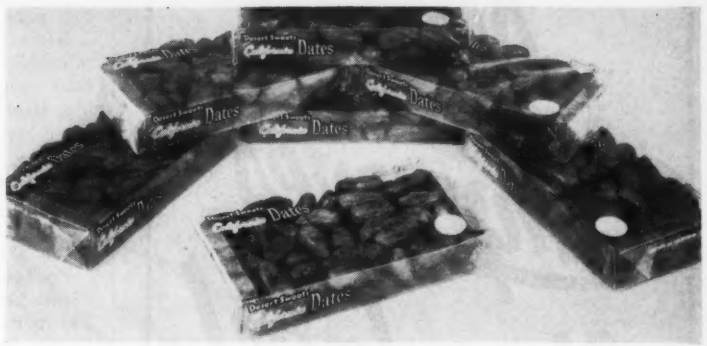
To form your own impartial judgment, send for a sample and information on how to use VICO 400 to best advantage in your formulas. A thoughtful comparison of flavors will demonstrate an unmistakable new taste experience in VICO 400 products.

Manufacturing Chemists to the Food and Pharmaceutical Industries

VICO PRODUCTS COMPANY

415 West Scott St., Chicago 10, Ill.

7311 on Reader Service Slip.



Transparent and rigid date tray, with cello overwrap, combines merchandising advantages of complete six-sided visibility with product protection

California Date first food packager to convert to . . .

High-speed automatic packaging in rigid plastic trays

A NEW packaging system — involving a new high-visibility polystyrene plastic tray cold-formed at high speed on special automatic equipment — is in use by California Date Growers Association, Indio, Calif., as part of a fully automatic forming, filling, sealing, overwrapping line for its new "Desert Sweets" date pack.

The new "Plasti-Lok" package, along with its special cold-forming equipment, was introduced late in 1959, and described in FP for December 1959 ("Low-Cost, Rigid Transparent Packages").

However, California Date becomes the first in the food packaging industry to introduce this high-speed system, which does not require use of heat or adhesives to form a rigid all-plastic tray.

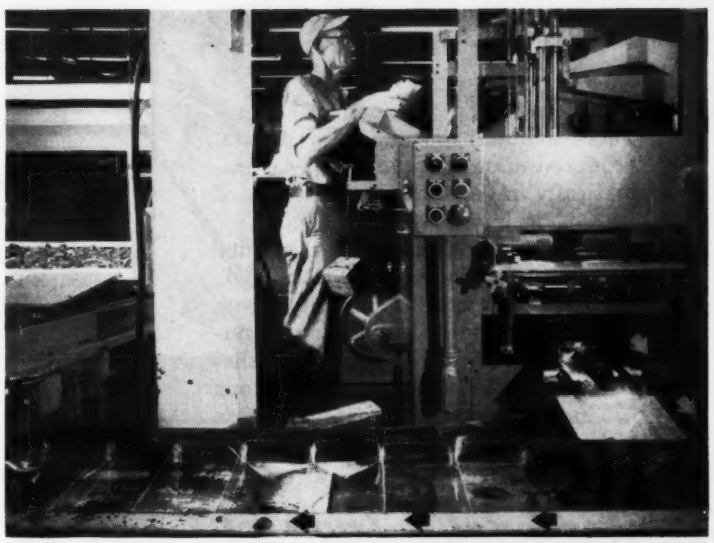
Trays are formed from unscored die-cut blanks of oriented polystyrene. (Die-cut blanks currently cost slightly more than paperboard.) Cracking and crazing are prevented by confining the blanks during the folding operations.

This oriented plastic has the desirable characteristic of "cold flowing" as it is bent and subjected to stress exceeding its elastic limit — resulting, essentially, in a dead fold.

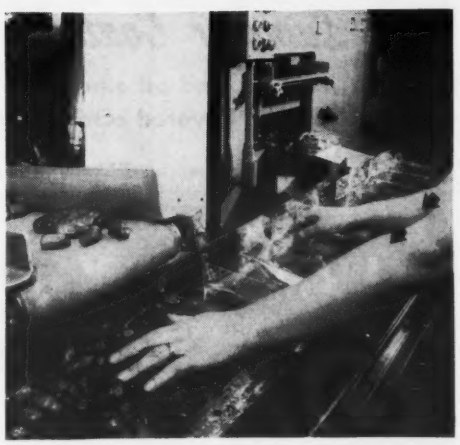
System requires oriented styrene sheets (manufactured by Plax Corp. using Monsanto resins) as none of the other currently available plastic sheets have the required properties for cold-forming and locking.

Incorporated in the die-cut blanks are male-female locks.

continued on next page



Die-cut blanks fed into magazine are cold-formed and securely locked at speeds comparable to current paperboard-tray-forming units. Machines are built to handle trays in sizes from minimum 2½ by 2 by ⅞ in. to maximum 11 by 7 by 2¾ in.



Date trays pass along conveyor belts to filling and weighing stations prior to overwrapping. Small "dust flaps" on each end of package have slotted base, are manually turned down by operator after filling — adding stacking strength

Plastic die-cut blanks, used by California Date, by Weyerhaeuser Company, Boxboard and Folding Carton Div., 919 N. Michigan Ave., Chicago 11, Ill.
7312 on Reader Service Slip.

Also licensed to produce die-cut plastic blanks are: Container Corporation of America, 38 S. Dearborn, Chicago 3, Ill.
7313 on Reader Service Slip.

Diamond National Corp., 122 E. 42nd St., New York, N.Y.
7314 on Reader Service Slip.

Hinde & Dauch, Div. of West Virginia Pulp & Paper Co., 4265 Decatur St., Sandusky, Ohio.
7315 on Reader Service Slip.

Robertson Paper Box Co., Inc., Route 163, Montville, Conn.
7316 on Reader Service Slip.

Schmidt Lithograph Co., 461 Second, San Francisco, Calif.
7317 on Reader Service Slip.

Cold-forming tray machine — available for lease or purchase — by R. A. Jones & Co., Inc., P.O. Box 485, Cincinnati, Ohio.
7318 on Reader Service Slip.

Reverse-printed laminated cello overwrap by Milprint, Inc., 4100 N. Holton St., Milwaukee 1, Wis.
7319 on Reader Service Slip.

New! Improves Chocolate!

INTENSITOL

Synthesized Chocolate Flavor Intensifier

Completely new development! Heretofore unobtainable flavor aromatics, produced in our laboratories, will dramatically improve the deliciousness of your chocolate flavored products.

In conjunction with cocoa powder or chocolate liquor, INTENSITOL restores the delicate volatile flavor aromas universally lost during manufacturing processes. This new synthesized chocolate intensifier in your product assures the ultimate in *flavor's richness, taste and aroma.*

Wonderfully Improves Summer Coatings

. . . and all other chocolate flavored confections.

Send for samples, prices & information.

Better Flavors for Better Products

FLAVOREX CO., INC.

302 S. CENTRAL AVE., BALTIMORE 2, MD.

7320 on Reader Service Slip.

continued from preceding page

Although no adhesive is used, once locked, the tray cannot be opened without fracturing the plastic.

After filling tray, operator manually bends flat the scored tabs — designed to add stacking strength — on each end, after which tray is overwrapped with reverse-printed double cellophane. Tray holds one-and-one-half lb of unpitted, or one-lb, six-oz of pitted dates.

Packaging speed of the Plasti-Lok machine — nearly 100 per min with California Date's 8¼ by 4½ by 1½ in. tray — is comparable to output of currently available paperboard-tray-forming units.

At California Date, the machine forms part of an automatic line which includes conventional paperboard-tray-filling equipment and an automatic overwrapper. END

Bakery technology and engineering

"Bakery Technology and Engineering" is a collaborative effort by more than 20 different author-experts in the baking field.

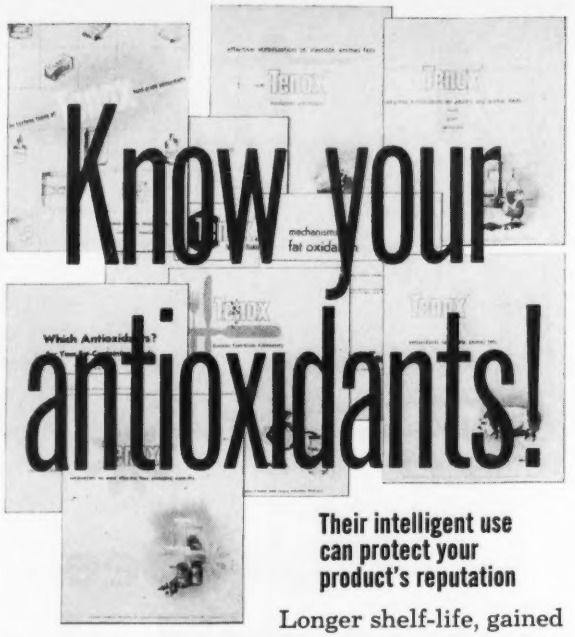
Edited by Dr. Samuel A. Matz, Head, Refrigerated Dough Laboratories, The Borden Foods Co., and formerly Chief, Cereal and General Products Branch, Quartermaster Food and Container Institute for the Armed Forces, the 650-page volume offers a wealth of information to those interested in bakery science.

Extensive descriptions of the chemistry and technology of the more important raw materials are presented, as well as discussions of fundamental processing techniques which can be applied to doughs and batters.

The technology and engineering of automation in the bakery are also considered.

Material is divided into four sections — The Materials of Baking; Formulations and Procedures; Equipment and Engineering; and Testing the Finished Product.

Publisher: The AVI Publishing Co., PO Box 388, Westport, Conn.; Price — $15.00 (domestic), $16.00 (foreign).



Know your antioxidants!

Their intelligent use can protect your product's reputation

Longer shelf-life, gained through the intelligent use of antioxidants, has often spelled the difference between success and failure in marketing a food product. Key to the intelligent use of antioxidants is an understanding of their function. An easy way to obtain that understanding is through the following pieces of literature:

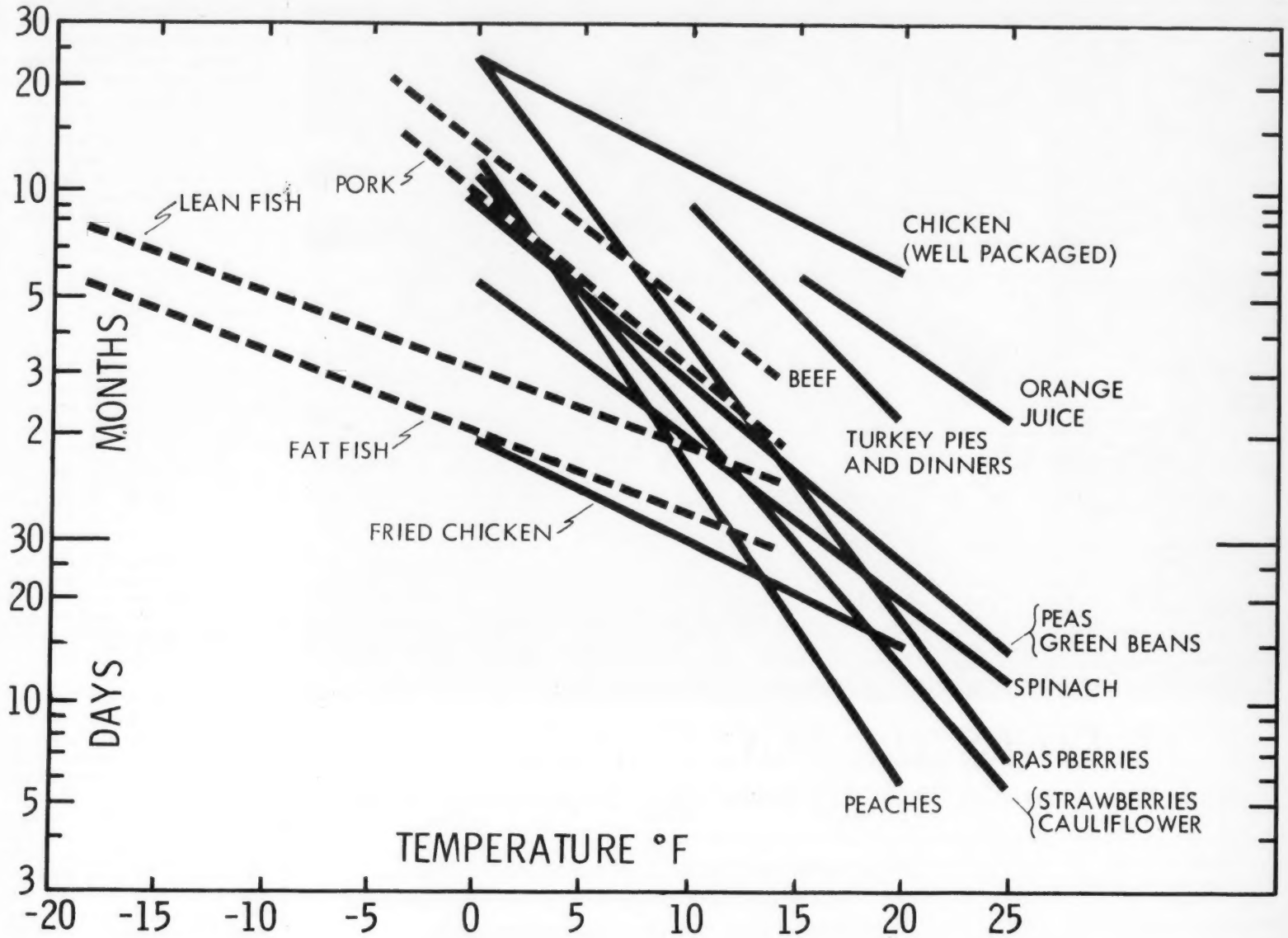
- **Tenox—Eastman food-grade antioxidants**
- **The Eastman family of Tenox food-grade antioxidants**
- **Which antioxidants for your fat-containing foods?**
- **Tenox antioxidants for more effective food packaging materials**
- **Tenox antioxidants for edible animal fats**
- **Effective stabilization of inedible animal fats with Tenox**
- **Tenox feed-grade antioxidants for poultry and animal feeds**
- **Tenox antioxidants for the fishing industry**
- **Mechanisms of fat oxidation**

Eastman manufactures all the principal types of food-grade antioxidants in use today. We can, therefore, suggest without bias the most effective antioxidant for your product. For any of this literature about antioxidants, write to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

Tenox Eastman food-grade antioxidants

7321 on Reader Service Slip.

Fig. 1



RELATIVE STABILITIES OF FROZEN FOODS*

HOW FROZEN FOODS compare with each other in resisting changes is shown in the semi-log graph (Fig. 1) prepared by USDA scientists at the Western Regional Laboratory, Albany, California.

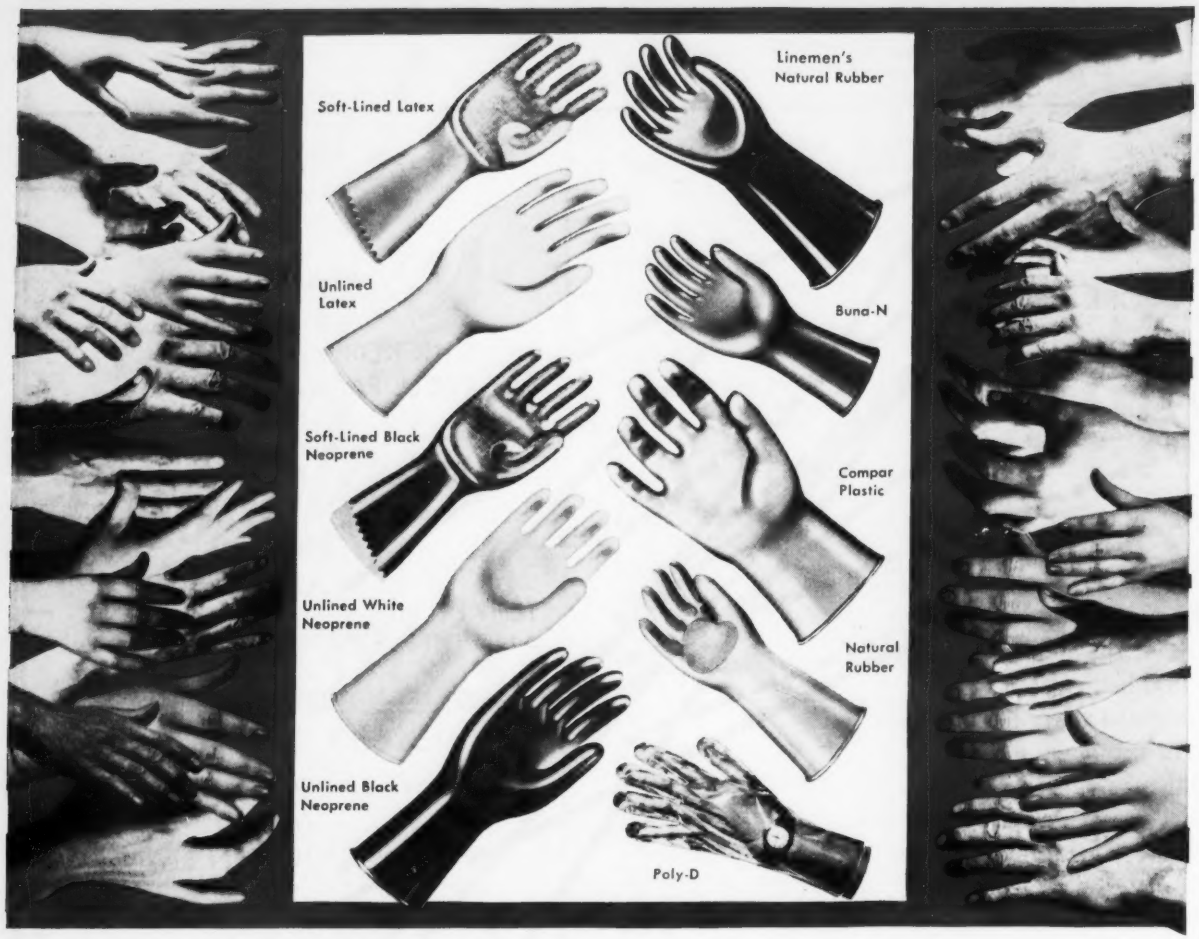
Actually, use of lines to represent the findings is an oversimplification, for the lines represent average values and should be depicted by a band to take into account variability encountered in raw material, processing and packaging. Thus, for strawberries at 20 F the time to the first detectable change was determined from 55 lots as shown in Fig. 2 (next page) and averaged to 10 days.

It is to be emphasized that the *solid* lines on this chart represent the time to the first detectable change as determined by a trained panel of USDA observers, highly sensitive to changes. The frozen foods are still of as high quality to the average consumer as when first packed; nevertheless, detectable changes are underway and indicative of loss in quality which will eventually occur.

The dashed lines are taken from a review of American, Canadian, and German data by Professor Kuprianoff, Federal Research Institute for Food Preservation, West Germany. They are based on the point at which quality rating changes from excellent to very good, and probably represent a greater change in quality than the solid lines. (The solid line for orange juice is

*A summary of a report prepared by Allan D. Shepherd presented November 4, 1960 at a meeting on Frozen Food Quality in USDA's Western Regional Research Laboratory, Albany, Calif., attended by representatives of AFDOUS and FFAICC. Mr. Shepherd compiled most of this summary from the Time-Temperature-Tolerance Series on "Food Technology" by the following authors: M. M. Boggs, G. S. Bohart, A. A. Campbell, W. C. Dietrich, L. R. Fletcher, D. G. Guadagni, H. L. Hanson, E. F. Jansen, A. A. Klose, F. E. Lindquist, Hans Lineweaver, H. J. Morris, H. J. Neumann, C. C. Nimmo, M-D Nutting, R. L. Olson, M. F. Pool, W. F. Talburt, W. B. Van Arsdel, and N. E. Weinstein.

Complete proceedings can be obtained from the Western Regional Research Laboratory, Albany 10, California.



IT TAKES ALL TEN

...And You Can Get 'Em All From One Dependable Source

Ten Quality Lines!
One Dependable Source!

INDUSTRIAL GLOVES
Poly-D
Natural Rubber
Soft-Lined Latex
Unlined Latex
Soft-Lined Black Neoprene
Unlined Black Neoprene
Unlined White Neoprene
Buna-N
Compar Plastic

LINEMEN'S GLOVES
Natural Rubber
(Leather Protectors, too)

WIL-GARD

Now—from ONE dependable source—the right glove for the best hand protection in any of hundreds of industrial uses. Get the right quality, too—Wil-Gard Gloves with premium-quality materials and advanced design. For longer wear, greater comfort, more value for your dollar, contact your Wil-Gard Distributor.

Sold only through distributors

WR-161-14

PROTECTION FOR THE HANDS OF INDUSTRY • SINCE 1916

WIL-GARD®

THE WILSON RUBBER COMPANY INDUSTRIAL DIVISION CANTON 6, OHIO

A Division of Becton, Dickinson and Company • Pacific Coast Warehouse: 530 Howard St., San Francisco 5, California

7322 on Reader Service Slip.

based on data from DuBois of Minute Maid, Plymouth, Florida.)

For strawberries, flavor and color change at the same time, and the average data from which the solid line on the master graph was prepared are shown in Fig 3. For certain other commodities the different quality attributes do not change at the same rate. Thus for green beans, the time to the first detectable flavor change is 3 to 4 times greater

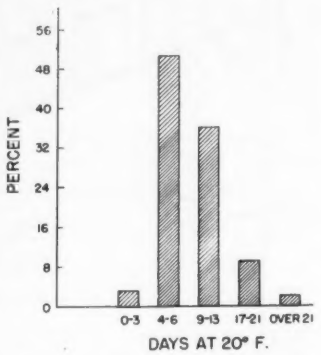


Fig. 2 — Percentage of total number of lots (55) of frozen strawberries which became significantly different in flavor from their respective controls after various storage periods at 20° F

than the time to the first detectable color change. In general, the lighter the color of the product, the easier it is to detect color changes. However, the degree of off color involved is not otherwise significant; hence, to avoid penalizing light-colored products the data for the solid lines are based on time required for first detectable flavor change with two exceptions: (1) for peaches, color change has been used because deterioration produces a decided change in color to an unattractive brown and is easily detected without use of a control; (2) for poultry, odor of raw meat has been used as the criterion since flavor of the cooked meat is a more complex and somewhat less sensitive measure.

Note the qualification of "well-packaged" for chicken. Experience with poorly packaged chicken would be represented by a line about one third the times at corresponding storage temperatures .

If we compare frozen foods as represented here with regard to stability at 0°F, we

find that chicken, raspberries and probably turkey pies and dinners may be stored for well over one year without detectable quality loss. In the 10-month-to-one-year range at 0°F before a detectable change, we find green beans, peas, strawberries, cauliflower and peaches. About 6 months produces a detectable change at 0°F for spinach. Fried chicken requires about 6 months at 0°F.

For other products stabilities at 0°F might be over a year for heat-treated orange juice, about 1 year for beef, 9-10 months for pork, 3 months for lean fish and 2 months for fat fish.

The difference in slope of the lines is significant. (A line of zero slope, that is a horizontal line, would represent a product whose stability is unaffected by temperature.) Chicken and fried chicken have the least

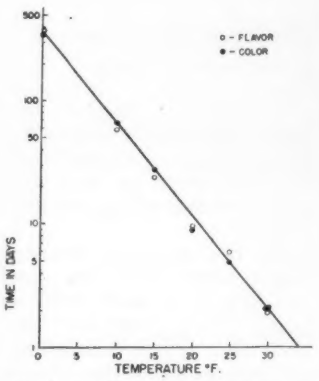


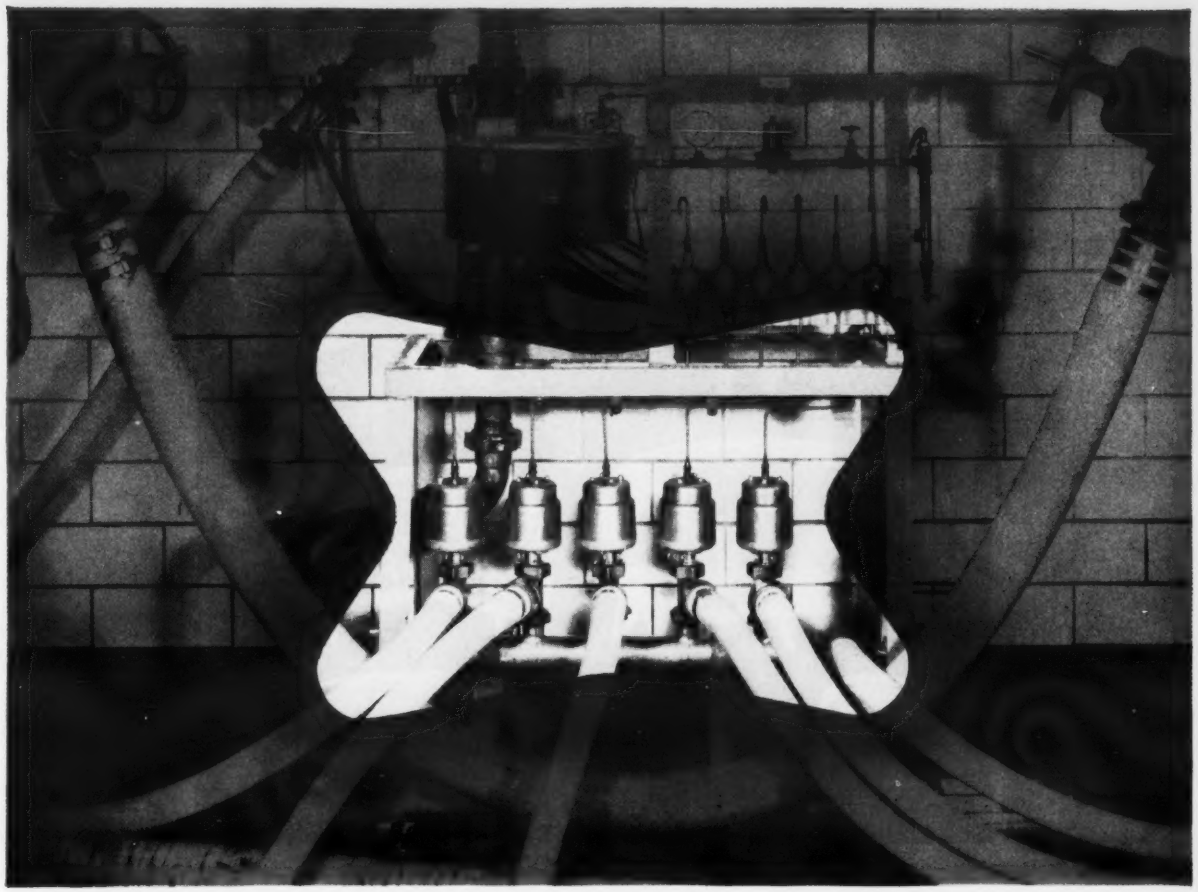
Fig. 3 — Effect of temperature on subjective color and flavor changes of frozen strawberries

slope and thus show the least dependence on storage temperature. Raspberries and peaches have the most slope, indicating that their stability is substantially lowered by even a small rise in storage temperature. END

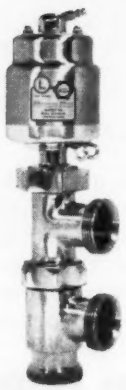
Latest technology in dairy standard methods

The eleventh edition of, "Standard Methods for the Examination of Dairy Products," considers basic public health concepts and the relative accuracy of methods for measuring sanitary quality.

Revisions have been made



How Miller Brewing Company utilizes automatic valves to measure clarity of filtered beer



Ask your nearest Tri-Clover distributor about the complete line of air actuated valves for fast, automated flow control to reduce processing costs, increase worker output and improve inventory control.

Miller Brewing Company and Ladish Co., Tri-Clover Division engineers recently worked out a better way to measure and record the clarity of famous Miller "High Life" beer . . . by using five air actuated valves to automatically control product flow from the filters. A "Turbidity Meter" monitors the lines by signaling for shut-off of the valve at the first sign of filter build-up.

The result: Miller Brewing Company is now assured of direct, positive and automatic measuring of one of their most valuable "properties"—the *clarity* of the "Champagne of Bottle Beer." With this type of installation, Miller Brewing Company is in a position to exercise the most exacting control of the clarity of the beer.

This is a good example of how experienced Tri-Clover engineers can translate the exclusive design features of "Fesco-type" air actuated valves into opportunities for greater profit for you . . . through automated flow control.

Write for details.

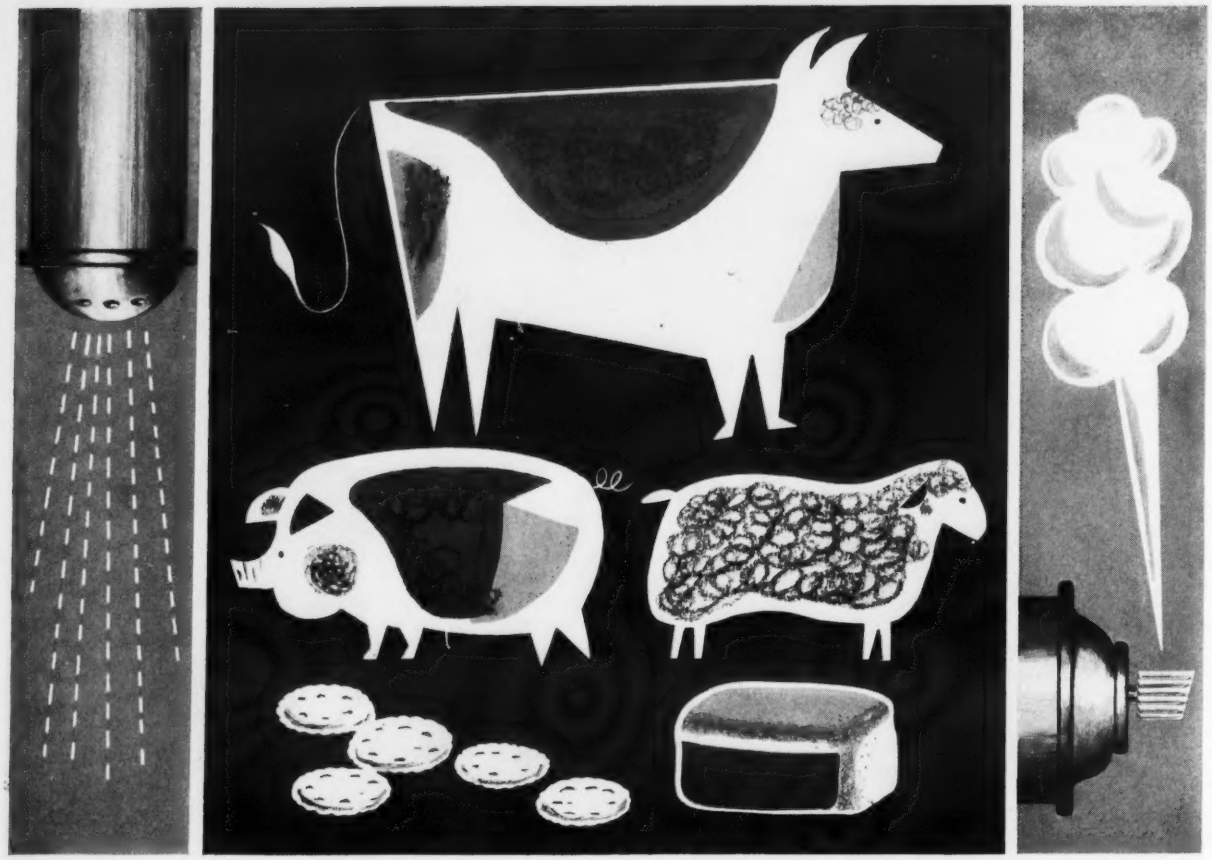
S760

TRI-CLOVER

LADISH CO.
Tri-Clover Division
Kenosha Wisconsin

IN CANADA: Brantford, Ontario
EXPORT DEPARTMENT: 8 South Michigan Avenue, Chicago 3, Illinois
Cable TRICLO, CHICAGO, U.S.A.

7323 on Reader Service Slip.



RHOZYME® ENZYMES OFFER FLEXIBLE ADAPTABILITY AS MEAT TENDERIZERS AND FOOD MODIFIERS

Since RHOZYME proteolytic enzymes are microbiological products, they can be made to a variety of specifications and allow adaptability not afforded by enzymes from plant and animal sources.

For example, RHOZYME P-11 is tailored for optimum effectiveness in meat tenderizing formulations. Rohm & Haas offers basic formulas for both liquid and powder tenderizers. The liquids are ideal for packaging in aerosol spray dispensers. Rohm & Haas has done considerable research to provide good shelf stability to aerosol packaged tenderizers and makes the information available to you. RHOZYME P-11 has been approved by the Meat Inspection Division of USDA for use as a tenderizer in treating meat cuts.

Other RHOZYME proteolytic enzymes are designed for applications such as modifying whey protein for cheese spreads; acting as substitutes for rennet in making cottage cheese; improving quality of bread, crackers, cookies; making protein hydrolyzates for diet foods, cereals, pharmaceuticals.

Write to Dept. SP-16 for enzyme samples, information on aerosol tenderizers, and suggestions for additional uses of proteolytic enzymes in food processing.

ROHM & HAAS

PHILADELPHIA 5, PA.

RHOZYME

7324 on Reader Service Slip.

in the methods of measurement for sediment to include sediment tests in bulk farm tanks enroute. Attention is given to new material on collecting samples from large tanks, vats and farm tanks.

A section covers methods of examination for preservatives, sanitizers and other residuals which are coming under c l o s e r surveillance. More recent testing developments included are hydrolytic rancidity, and water addition tests by thermistor cyroscope.

The hazards from radio active fallout in relation to milk is discussed briefly and testing procedures to detect the presence of strontium-90 are included.

The reference contains 448 pages and copies may be obtained from the American Public Health Association, Inc., 1790 Broadway, New York 19, N.Y. for $7.00.

How to apply for govt small business loan

A recent publication, October, 1960, briefly covers details of obtaining a small business loan with the assistance of the small business. administration.

The 16 page folder discusses twelve topics about the general aspects of small business loans. Covers loan purposes, eligibility, term and collateral.

Copies are available on request to the Small Business Administration, 118 Vermont Avenue, N. W., Washington 25, D.C.

"It may need a little more sugar."

Confectionery flakes are available in medium (left) and fine (right) particle sizes to meet the specific needs of the food industry

Confectionery Flakes

Filler ingredient offers many advantages to bakers, confectioners

Used in candy bars, fig bars, coconut macaroons, etc., pregelatinized flakes reduce costs, improve product and provide better handleability during processing

W. L. VOLLINK
Manager, Corn Laboratories
General Foods Corporation

CONFECTIONERY FLAKES are finding wide and varied application as an ingredient in the pastry, bakery and confectionery fields.

They offer marked advantages as a filler in candy centers and pastries, and in such cookies as fig bars and macaroons. They can be combined with sugar for prepared dry pastry toppings and serve as an excellent conditioner to extend product shelf life.

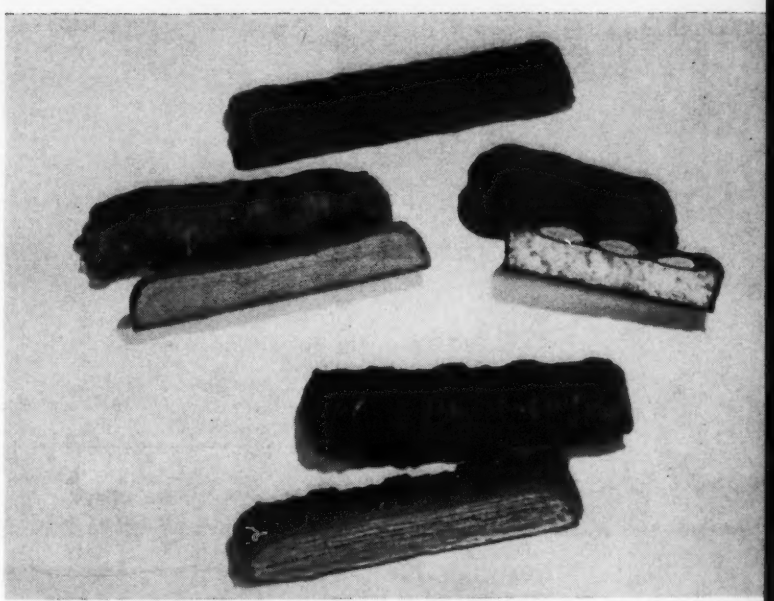
They also reduce cost of fillings and improve product handleability during processing.

These light yellow flakes, bland in flavor with nut-like characteristics, are manufactured under a special process from degerminated yellow corn. They retain eight to nine per cent of their natural protein content. The flakes are marketed under the trade name of Post Confectionery Flakes.

Extend shelf life. As a filler, confectionery flakes offer extremely good water-holding and binding properties to provide extended shelf life of products into which they are incorporated.

Since they are 85 to 95% pregelatinized, no cooking is required in most uses. They retain much of the natural antioxidant present in raw corn, which gives the flakes exceptionally good stability.

Cost savings. Confectionery flakes are currently priced at eight to nine cents per pound. Therefore, substantial savings in raw material costs can be achieved by using confectionery flakes to partially replace more expensive fruit pastes, coconut and other materials used as fillings in candies and bakery items.



Confectionery flakes have wide possible application for use in candy bars. They offer substantial cost savings when used to partially replace ingredients usually making up the filling of the bar

Users also report that pastes incorporating confectionery flakes are less sticky or gummy so that handling during processing is easier, faster and less costly.

To provide an objective appraisal of the cost savings and

Filler ingredient offers many advantages to bakers, confectioners continued

quality of products made with confectionery flakes, baking studies were conducted by an independent laboratory.

Formulations for fig bars and coconut macaroons were tested with and without confectionery flakes (see photos).

In the fig bar filling formula, ten per cent of the ground fig filling was replaced with confectionery flakes. Cookies were then handled according to regular production methods.

Results of the tests showed that formulations produced comparable fig bars from the standpoint of eating quality. This indicated the possibility of a substantial savings when part of the ground fig paste, used as the filling, is replaced with confectionery flakes.

In the test for coconut macaroons, similar savings were indicated. Appearance, color, texture, flavor and eating characteristics of the macaroons, made with or without confectionery flakes, were comparable.

Two grades available

Flakes are classed as a food "ingredient" rather than a food "additive" under the Food, Drug and Cosmetic Law, and so can be used freely in food products. (Microbiological assays of confectionery flakes are within National Canners Association specifications.)

The confectionery flakes are packaged for shipment in multiwall bags of 40 pounds each.

Additional information concerning specific uses of confectionery flakes is available from Ross Barzelay, Manager, Corn Mill Sales, General Foods Corporation, Corn Mill, Kankakee, Ill.

7325 on Reader Service Slip.

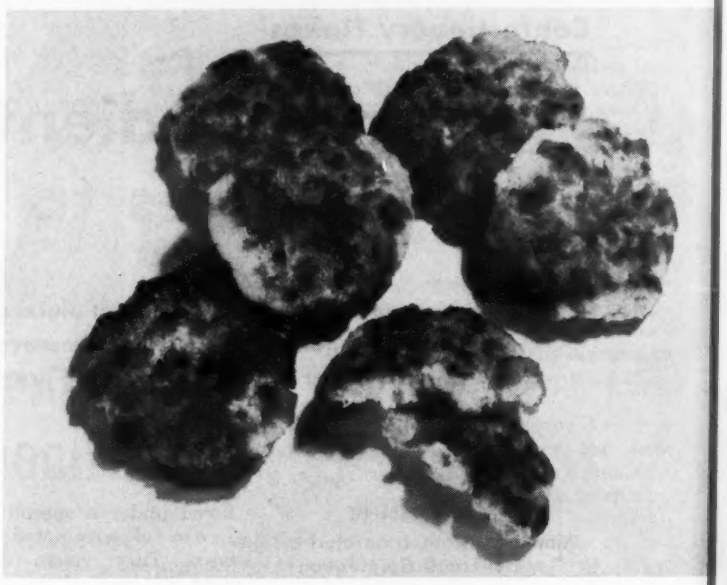


Fig Bar Filling Formula

	Control Formula without Confectionery Flakes		Formula with Confectionery Flakes	
Ingredient	lbs.	ozs.	lbs.	ozs.
Ground Figs	50	0	45	0
Confectionery Flakes	—	—	5	0
Water	20	0	25	5
Glucose	10	0	10	0
Invert Sugar	20	0	20	0
Salt	0	3	0	3

Mixing instructions: Soak figs with sufficient water to soften. Grind the figs and blend them with the confectionery flakes. Blend with the other ingredients and mix until well distributed

Cocoanut Macaroon Formula

	Control Formula without Confectionery Flakes		Formula with Confectionery Flakes	
Ingredient	lbs.	ozs.	lbs.	ozs.
Water (variable)	10	0	10	0
Sugar	35	0	35	0
Invert Sugar	10	0	10	0
Salt	0	1½	0	1½
Macaroon Coconut	35	0	31	8
Confectionery Flakes	—	—	3	8
Baking Powder	0	3¼	0	3¼
Cream of Tartar	0	1½	0	1½
Egg Whites	10	0	10	0

Mixing Instructions: Heat water, sugar, invert sugar and salt and bring to a boil. Do not continue to cook. Separately blend the coconut, confectionery flakes, baking powder and cream of tartar. Pour the hot syrup onto this blend and mix until cooled to 150 F. Add egg whites and mix until smooth. The amount of water used will vary with the dryness of the coconut

TABLE I — Water Absorption Tests

	100% Flour	95% Flour 5% Potato Flour	90% Flour 10% Potato Flour	95% Flour 5% Confectionery Flakes	90% Flour 10% Confectionery Flakes
lbs of water absorbed per 100 lbs material	58.6	61.0	60.7	61.3	63.9
Absorption by Wheat Flour in test material (lbs water)	58.6	55.7	52.7	55.7	52.7
Additional water (lbs) absorbed with Potato Flour or Flakes used	—	5.3	8.0	5.6	11.2
% Water absorption, by weight of Potato Flour	—	106%	80%	—	—
% Water absorption, by weight, of Confectionery Flakes	—	—	—	112%	112%

Table at left shows results of tests conducted on water absorption and retention for hard wheat flour alone, and in combination with potato flour and confectionery flakes. A farinograph, which measures physical mixing characteristics and water absorption capacity, of varied ingredients was used in conducting the tests.* Tests indicated that in bakery products, where water absorption and retention are desirable for textural effect and longer shelf life, use of the flakes is advantageous.

*To obtain comparable results, all materials were tested on a 14% moisture basis.

TABLE II — Analysis of Confectionery Flakes

	Fine Flakes	Medium Flakes
% Moisture (maximum)	11.0	11.0
% Fat — Corn Oil (maximum)	1.0	1.0
% Protein	7.8 to 8.9	7.8 to 8.9
% Fiber	0.45 to 0.55	0.45 to 0.55
% Ash	0.25 to 0.35	0.25 to 0.35
Density (Ounces/dry quart)	2.6 (±0.3)	2.1 (±0.2)
Granulation (100% through)	3/32 in.	1/4 in.
% Gelatinization	85 to 95	85 to 95

Making Confectionery Flakes

As corn for making confectionery flakes enters the mill from storage, it passes over magnetic separators to remove tramp metal. It is then screened and "dry cleaned" to remove a high percentage of other foreign materials and contaminants.

Following this, corn enters the wet washer (Fig. 2) to remove such impurities as stones, sand or metal particles as well as cob, bits of stalk or damaged grain from the clean corn.

After wet washing and removal of free moisture by strong air currents, clean corn enters tempering equipment. The tempering process results in high moisture content and penetration into the corn, making possible better cracking of kernels for improved separation of endosperm and uniformly low fat content of finished product.

Cracked kernels pass through degerminators to produce degerminated grits (Fig. 3). Grits are processed into gelatinized sheets (Fig. 4) which are then cut into fine or medium particle sizes for use as confectionery flakes.

END

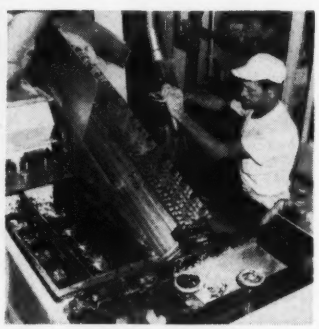


Fig. 2 — Wet washer, manufactured by the Buhler Co. of Switzerland, removes heavier-than-water impurities from corn. These heavier particles sink into the screw section (lower left) for automatic removal. Corn moves into a float-off tank (lower right) where light-weight particles are floated off and separated from clean corn. Corn is then carried by inclined screw conveyor (above float-off tank) up through rinsing drum where water drains away through perforated casing. As grain continues upward, it is thoroughly rinsed by jets of clean water

Fig. 3 — Regular inspections are made of grits to be made into confectionery flakes after grits pass through air streams in aspirators to assure freedom from dust, chaff or other light-density contaminants

Fig. 1 — Confectionery flakes are packed in multiwall paper bags to protect product purity during shipment and handling

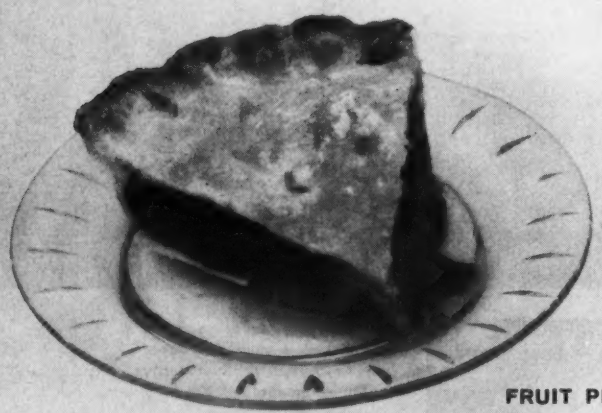
Fig. 4 — Grits are processed into gelatinized sheets in heated rolls and then cut into confectionery flakes

CANNED VEGETABLES
Prevents pre-processing browning

FRUIT DRINKS
"Peps up" as an acidulant

BABY FOODS
Improves palatability

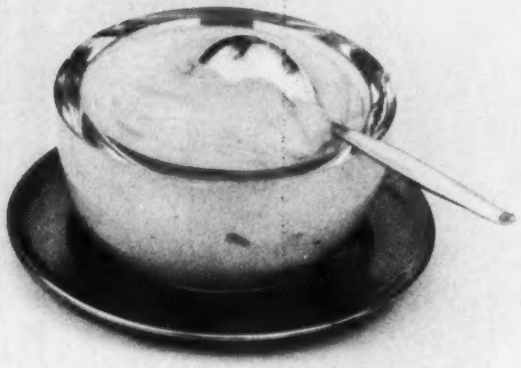
BREADED SHRIMP
Slows enzyme action;
reduces bacterial growth



FRUIT PIE FILLINGS
Increases fruit content;
improves flavor

CANNED SOUPS
Enhances flavor

CANNED FIGS
Reduces autoclave temperature; improves flavor and texture



MAYONNAISE
Extends shelf life

VEGETABLE JUICE COCKTAIL
Adjusts acidity; improves flavor

PRUNE JUICE
Accents flavor

What can lemon juice do for your product?

These are a few of the processed foods that *look* better, *taste* better and *sell* better, thanks to Exchange Concentrated Lemon Juice.

They range from ocean bottom seafood to treetop fruit.

Your product may be one that can be transformed from "good" to "superior" by the use of lemon juice as a flavor enhancer. Loss from spoilage or discoloration can often be cut—even eliminated—by using it in processing.

Exchange Lemon Juice can be a selling ingredient of distinction on your label at a cost of just pennies. Tell us what your product is. We'll tell you if and how lemon juice can improve it. Just use the coupon.

Sunkist Growers

Products Sales Dept., 720 E. Sunkist St.
Ontario, California

GENTLEMEN: *Our product is* _____

_____

_____. *How can lemon juice help?*

NAME _____

ADDRESS _____

CITY _____ ZONE ____

STATE _____

Exchange

KELCO COMPANY

technical bulletin

REFINED ALGIN PRODUCTS

Use unique Kelco Algin Colloids to improve your food products

In Frozen Foods, Kelcoloid, in acid to neutral foods having oil-water systems, provides emulsion stability. Coarse ice crystal formation is retarded. Kelcoloid holds structure of food, maintains smooth uniform texture, and promotes complete flavor release.

In Salad Dressings, Kelcoloid, highly efficient stabilizer, prevents body separation and markedly increases shelf life. Kelcoloid promotes a uniform, smooth consistency giving dressings a highly desirable, palatable appearance.

No Surer Way to Achieve Effective Emulsion Stability

KELCOLOID HVF, the high viscosity member of this series, is generally recommended for use where a decided increase in viscosity is desired along with effective emulsion stability.

KELCOLOID LVF, the low viscosity member of this algin series, produces excellent emulsion stability and desirable body qualities. The LVF is recommended for use where a high degree of emulsion stability is desired with a minimum change in viscosity and body properties.

YOURS ON REQUEST: Free samples of KELCOLOID and other Kelco algin products, plus Technical Data describing properties, advantages and uses. At your service, too, are highly qualified food technicians ready to give individual attention to your problems. Write without obligation to your nearest Kelco regional office.

Kelcoloid HVF® Kelcoloid LVF® products of Kelco Company

75 Terminal Avenue, Clark, N. J. • 20 N. Wacker Drive, Chicago 6, Ill. • 530 W. Sixth Street, Los Angeles 14, Calif.
Cable Address: KELCOALGIN — CLARKNEWJERSEY

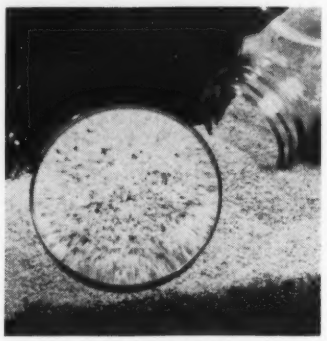
7327 on Reader Service Slip.

For more information on preceding spread, circle 7326.

Poultry coccidiostat is included in feed

A recent development has made a new medication available which is active against five species of poultry coccidiosis, the protozoa poultry disease which frequently infests the digestive tract of chickens.

The product called, Zoamix, has been approved by the FDA for the intended purpose with tolerance limitations of 0.0125% in the diet.



Zoamix is a powdered product which may be easily mixed with blended feeds

It has the advantage that feeding can continue up to the point of the kill. Many other medications must be dropped several weeks prior to killing time, resulting in an unprotected period. The treated birds do not have any off flavors and there is no physical defect.

Zoamix is available as a 25% concentrate with a soybean product filler. It is marketed in 50 pound paper bags.

Supplier: The Dow Chemical Co., Midland, Mich.

7328 on Reader Service Slip.

Milk protein binds water in foods

Crest 85, a milk protein derivative, is used as an ingredient in ice milk, ice cream, cottage cheese, sour cream, low fat milk and may be adaptable to other foods.

The process of manufacturing the protein alters the physical character of milk protein so that it has the abil-

ity to absorb or hold larger amounts of water than is usually expected with milk protein.

It has been used as an additional ingredient in ice milk and ice cream products to decrease the amount of free water and thereby reduce the incidence of large ice crystal formation. Similar reduction of free water in sour cream, buttermilk and cottage cheese dressings reduce the incidence of moisture bleed-out or syneresis.

Reducing the amount of free water also tends to highlight flavor characteristics. This is particularly true in low fat high moisture formulations.

Crest 85, is generally recognized as safe under the Food Additives Law.

Supplier: Crest Foods Company, Inc., Ashton, Ill.

7329 on Reader Service Slip.

Catalog of essential oils

Latest price catalog of essential oils, aromatic chemicals, specialties and certified colors is available from Dodge & Olcott Inc. The 36 page booklet is published semiannually and includes short descriptions and uses of various products. Copies are available.

7330 on Reader Service Slip.

Applications for nonionic surface acting chemicals

Applications are described and properties tabulated for 37 representative nonionic surface active chemicals in 4-page bulletin from Hodag Chemical Corporation. Nonionics have application in the food processing industries as antifoam agents and emulsifiers.

Included in discussion are glycerol esters, other polyhydric alcohol esters, polyglycol esters and polyoxyethylene alkyl aryl ethers.

Typical compounds are tabulated according to designation, description, appearance at 25 C, melting point in degrees centigrade, specific gravity and water solubility.

7331 on Reader Service Slip.

Old King Cole is a merry old soul
And no wonder he feels that way
The foods and the cheeses that fill his bowl
Keep fresh with SORBISTAT®-K!

FOODS STAY FRESH and "fit for a king" far longer when protected with SORBISTAT-K (potassium sorbate, Pfizer). This safe, efficient inhibitor of mold and yeast growth has little or no effect on the taste, and is proving highly successful in a variety of modern food products.

Some examples: fresh fruit cocktails ▫ high moisture cake ▫ cake fillings and icings ▫ fruit pie fillings ▫ cheeses ▫ fountain fruit syrups ▫ chocolate syrups ▫ prepared salad ▫ pickles ▫ dietetic jams and jellies ▫ smoked and pickled fish ▫ wine ▫ dried fruits.

SORBISTAT-K is readily soluble in water. You can prepare up to 50% solutions for sprays, dips and metering.

FOR APPLICATIONS WHERE WATER SOLUBILITY IS NOT A FACTOR Pfizer now offers new, improved SORBISTAT® (sorbic acid, Pfizer). SORBISTAT is a free-flowing product that dissolves readily in oil and fat media and can be mixed easily in dry form with other dry food ingredients. It has an extremely low moisture content.

Please send me Technical Bulletin #101, "Sorbistat®—Sorbistat®-K" FP
NAME_____
TITLE_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____

Science for the world's well-being

Quality Ingredients for the Food Industry for Over a Century

Pfizer

Chas. Pfizer & Co., Inc., Chemical Sales Division, 630 Flushing Ave., Brooklyn 6, N. Y.
Branch Offices: Clifton, N. J.; Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.; Atlanta, Ga.; Dallas, Tex.; Montreal, Canada

7332 on Reader Service Slip.

Givaudan offers you
a complete family of high quality

IMITATION ESSENTIAL OILS

always uniform...always available!

Givaudan offers you a wide and interesting variety of imitation citrus and spice essential oils—each rivaling in strength and quality the finest natural oils.

But quality is only one of the many advantages of these Givaudan imitation essential oils. They are *always* uniform in strength and aroma...*always* available in desired quantities...*always* economical and stable in price. Produced domestically by Givaudan with materials completely under Givaudan's control, they provide you with a completely reliable domestic source of supply. May we demonstrate how accurately they can meet your specific requirements?

Givaudan Flavors Inc.
321 West 44th Street
New York 36, N. Y.

7333 on Reader Service Slip.

ingredients

A guide to foam control

Methods of fast, efficient foam control are presented in a new comprehensive booklet on silicone antifoamers available from Dow Corning Corporation.

Manual tells where and how silicones actually reduce processing time and maintenance costs, as well as increase production capacity and efficiency.

Booklet 4-407 also lists the silicone defoamers permissible in foods under the Federal Food, Drug and Cosmetic Act as amended by the Food Additives Amendment of 1958.

7334 on Reader Service Slip.

USDA clears meat tenderizing enzyme

The Meat Inspection Division of the USDA has given approval to the use of a meat tenderizing ensyme, Rhozyme P-11, for treating meat cuts. Enzyme contributes tenderizing action to meat while minimizing mushiness and off-flavor.

Ruling from USDA requires that a prominent descriptive statement of the tenderizing treatment shall appear on the product label of the meat in which the enzyme is used. Ruling also specifies that gain in weight of the meat, as a result of the tenderizing treatment, will be limited to three per cent.

Earlier FDA action ruled that certain enzymes, supplied for use in the food industry, are not additives under the terms of the Food Additives Amendment. Rhozyme P-11 is one of the enzymes falling within this group. Therefore, it is not necessary to obtain FDA approval.

Supplier: Rohm & Haas Company, Washington Square, Philadelphia 5, Pa.

7335 on Reader Service Slip.

For more information on product at right, circle 7336 . . . see information request blank opposite last page.

How much more does quality cost?

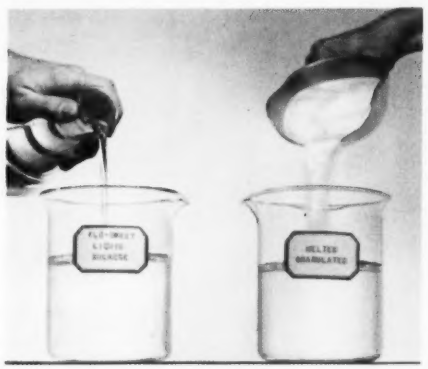
Not a penny, when you use Flo-Sweet for sweetening!

In fact, Flo-Sweet *saves* you money in a number of important ways. By eliminating manual handling of sugar. By avoiding sugar melting costs. In many areas, in the cost of sugar itself.

But a vital reason for the revolution that Flo-Sweet is making in food processing is *quality*. Flo-Sweet liquid sugars make possible a degree of quality control, and even quality improvement, that is difficult or too expensive with ordinary granulated.

You can easily verify Flo-Sweet's higher quality yourself, through the simple test shown at the right. Just dissolve some of your favorite granulated . . . concentrate it to 67° Brix . . . and compare its color with that of Flo-Sweet liquid sucrose.

Your Flo-Sweet engineer will be glad to help you explore ways to use Flo-Sweet liquid sugars in cutting costs while boosting quality. Why not consult him soon?



REFINED SYRUPS & SUGARS, INC.

YONKERS, NEW YORK

SERVING INDUSTRIAL SUGAR USERS EXCLUSIVELY FROM YONKERS, ALLENTOWN, DETROIT, TOLEDO

FLO-SWEET

FIRST IN LIQUID SUGAR

That new ingredient is
just what our product needed.
Where did you get the idea?
FOOD PROCESSING
. . . where else?
Eliminate pasty quality of many starch based foods
Pitfalls in formulating your own flavorings
New form of corn
excellent freeze-th
life for spices
important
-intention
Increased importance for Annatto color in cheese, ice cream, edible oils, etc.
Concentrated wine flavors contain no alcohol
Slash cost of pectic enzymes
FDA gran
33 direct

Flavor catalog

A 12-page price catalog, issued by Fritzsche Brothers, Inc., offers complete listing of flavors, essential oils, citrus concentrates, certified colors, etc.

Listing includes 119 main classifications of essential oils with derivatives for each classification also listed; 10 sesquiterpeneless and terpeneless oils; 4 animal fixatives; 13 tinctures; and 32 certified colors.

Catalog also covers resinoid fixatives, oleoresins, superesins and balsams, gums and sundries.

7337 on Reader Service Slip.

Technical bulletin on food preservation

The preservation properties of potassium sorbate and sorbic acid, called Sorbistat and Sorbistat-K, are discussed in a Technical Bulletin No. 101, issued by the Chas. Pfizer & Co., Inc.

The bulletin covers the subject of physical and chemical properties of sorbates, legal regulations, applications with specific food products, and assay methods.

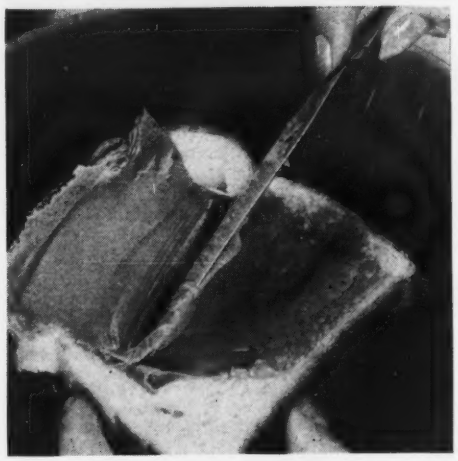
Details are included about approved applications with products such as beverages, cheeses, baked goods, dried fruits, fish, pickles etc. Information is also offered for experimental evaluation of the preservatives with cottage cheese, margarine and meats. Federal regulations do not include the use of sorbates in these three products.

Several tables are included to illustrate recommended methods for application and suggested useage levels with cheeses, fish and fruits. An extensive bibliography cites reference material from more than 100 sources.

7338 on Reader Service Slip.

Check page 100 for helpful technical literature

Textures for sale



In fat-based foods *Myverol® Distilled Monoglycerides* are widely recognized for one group of effects. In shortening, for example, they so control the tricky relationship between batter "curdle," bubble size, and cell-wall strength that a wonderful cake texture comes out of the oven. They permit peanut butter to go to the beach on a July day without leaking oil, yet spread smoothly after a week in the refrigerator.

In starch-based foods *Myverol Distilled Monoglycerides* have won just as big a place for an entirely different effect—the complexing of dissolved amylose. Dehydrated potato products have enjoyed their rip-roaring success because they make up into a food that looks like, tastes like, and is mashed potato, not library paste. Hot cereals no longer need inevitably turn jellylike a certain time after cooking.

A very small content of these unique molecularly distilled monoglycerides profoundly affects the delicate architecture of foods. Prepared from the glycerolysis of edible fats or oils, *Myverol Distilled Monoglycerides* are exempt from the Food Additives Amendment. For technical data and prices write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

distillers of monoglycerides made from natural fats and oils

DPi

Also . . . vitamin A in bulk for foods and pharmaceuticals

Distillation Products Industries *is a division of* **Eastman Kodak Company**

7339 on Reader Service Slip.

The big PLUS SERVICE EXPERIENCE RESEARCH PERFORMANCE in Oakite

Cleaning in-place cuts downtime from a week to an hour for canner

IN-PLACE CLEANING with modern Oakite materials produces truly remarkable results. For example:

Juice lines at one packing plant had become so caked with grape juice residue that black specks appeared in lighter colored runs. Half of the lines were dismantled and several men spent *a week* cleaning them manually.

Then the Oakite man urged in-place cleaning of the remaining half of the lines. A heated Oakite solution was circulated for 35 minutes through the pipes, which were then flushed. Results: *100% clean*—all in less than an hour.

The big PLUS in Oakite

Working with Oakite brings you the latest information on mechanized cleaning methods, on products that do the job. It means an end to waste of time and materials. It provides the advantages of constant cleaning research . . . a wealth of experience . . . *guaranteed* performance.

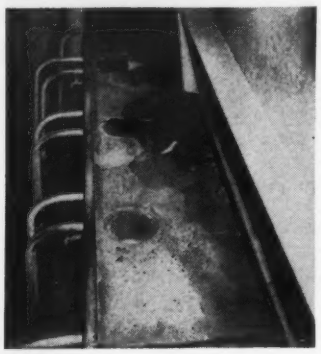
Ask your local Oakite man to demonstrate in your own plant, or send for Bulletin F-9414, which gives details. Oakite Products, Inc., 26G Rector St., New York 6, N. Y.

OAKITE

over 50 Est. 1909 years' leadership in industrial cleaning

SCIENCE

7340 on Reader Service Slip.



BEFORE

AFTER

Reclaimed work tables demonstrate tremendous resistance to wear

Epoxy coating increases useful life and improves sanitation

PROBLEM: Mr. Frank Miles, co-owner of the J. H. Miles & Co. — an oyster shucking plant in Norfolk, Va. — had a perpetual maintenance and sanitation problem.

Oysters were opened on cement top work tables which were 80 feet long and 7 feet wide. Opening these mollusks required the use of tools such as hammer, chisel and hard wood blocks. These tools caused nicking and chipping of the cement tops. In addition, oyster shells sliding on the tables erroded the tops.

This everyday damage caused serious maintenance problems. First, repairs were constantly required and complete resurfacing was an annual off-season project. Second, the health inspectors complained about unsanitary conditions caused by nicks, cracks and patches on the tables.

Solution: In August of 1958, Mr. Miles, consulted Norfolk contractor about the practicality of some form of plastic coating.

They decided to use one of the tables in a comparative test. The covering was to be a quarter inch thick and an epoxy based morter made by the Permagile Corporation of America, 34-43 Fifty-Sixth Street, Woodside, N. Y.

The table required only a thorough cleaning and 24 hours for drying. Then Permatop was applied with a simple trowel and smoothed over to the desired thickness. A few hours were allowed for hardening and the table was ready for use again.

The finished job had a smooth, impervious and hard surface.

Result: During the following 10 months the table was in service and carefully observed. This trial period was enough to prove that the epoxy coating was resistant to wear and errosion conditions.

Sections that did develop chipped and pitted conditions were easily resurfaced with a thin overlay to re-establish the original surface. These repairs were easily performed periodically.

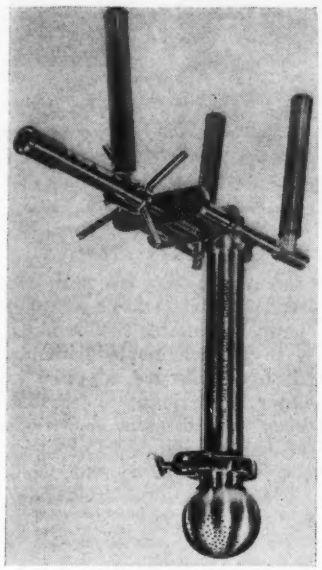
In June 1959, eight more tables were reconditioned in a similar way. All of these have been in use for more than a year with satisfactory results.

7341 on Reader Service Slip.

Design CIP nozzle to fit manholes

A CIP nozzle has three adjustable tines which can be expanded so that it is wedged into a manhole. The three tine feature makes it possible to mount the nozzle in a wide variety of manhole sizes and shapes.

It is provided with a standard sanitary threaded end (not visible), so that ordinary sanitary fittings can be used in connecting it into a CIP circuit.



Adjustable to different size manholes by moving left hand tine with handwheel

The familiar ball spray design is used and cleaning action is as effective as a permanently installed unit.

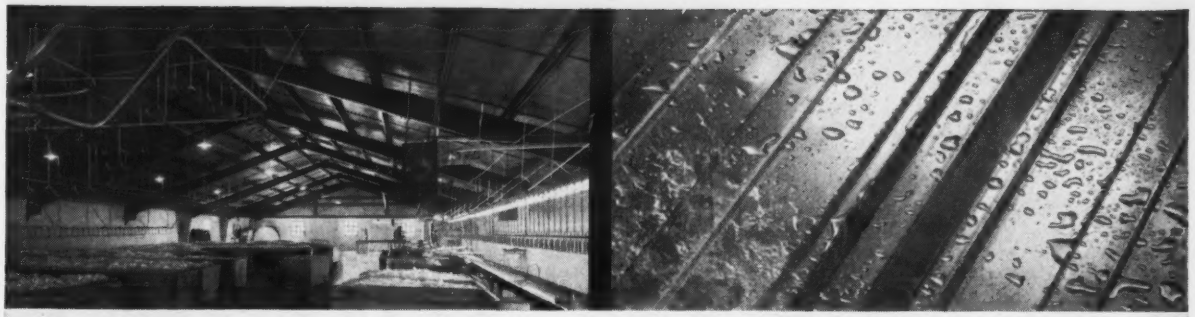
The manufacturer's designation is "D-Spra 700".

Supplier: The Diversey Corporation, 1820 West Roscoe St., Chicago 13, Ill.

7342 on Reader Service Slip.

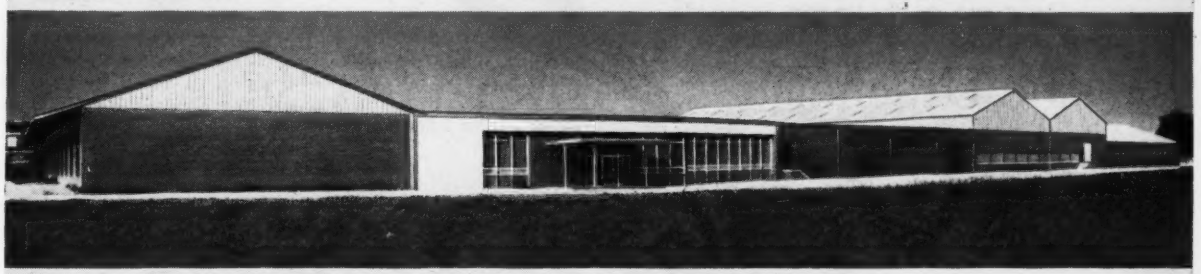
Design hose coupling to prevent blowouts

An improved hose coupling has a metal collar over the nipple insert, to prevent high pressure nipple blowout. It is designed for all types of high pressure hose uses requiring



With clean, efficient clear-span interiors... An exclusive 20-year optional roof guarantee...

Factory-insulated Monopanl® walls in color... Colorful Butlerib™ for non-insulated areas and roof...



...and the widest range of sizes and styles available

Butler processing plants are years ahead in pre-engineered quality!

Poultry, packaged foods, soft drinks – whatever you produce – a Butler building makes an ideal processing plant. To begin with, your basic building is practically pre-planned for you. Butler rigid frames provide full structural support – eliminate costly load-bearing walls – and utilize attractive, economical curtain wall systems. Inside, you have a post-free, truss-free production area that is ideally suited for straight-line processing and overhead handling.

The Butler System provides America's most advanced pre-engineered building. You save valuable engineering and construction time all through the building process, start producing weeks to months sooner. And only Butler offers an optional 20-year roof guarantee, *two* superior exterior wall systems, and the most beautiful and durable color finishes yet developed for pre-engineered panels.

Your local Butler builder provides a complete construction service, including financing. Call him soon for an estimate. Or write direct.

"See Sweet's Industrial Construction File – Section 8-B"

MBMA

CELEBRATING 60 YEARS BUTLER FABRICATING METALS

BUTLER MANUFACTURING COMPANY

7479 East 13th Street, Kansas City 26, Missouri

Manufacturers of Metal Buildings • Plastic Panels • Equipment for Farming, Transportation, Bulk Storage, Outdoor Advertising • Contract Manufacturing

Sales offices in Los Angeles and Richmond, Calif. • Houston, Tex. • Birmingham, Ala. • Kansas City, Mo. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. Cleveland, Ohio • New York City and Syracuse, N. Y. • Washington, D. C. • Burlington, Ontario, Canada

7343 on Reader Service Slip.

Top Brand French Style Bean Slices come from the Urschel Model "W"

Cuts on 5/32" centers

One cut at right angles thru center eliminates wide slabs

Urschel Model "W" French Style Bean Slicer

The finest, most appetizing French Style bean slices ... ready to be packed in your top-premium brand... are yours with the Urschel Model "W" Slicer, utilizing No. 4 and No. 5 sieve size pod beans.

Featured is a new feed belt designed to substantially increase the machine's capacity.

Write or call today for complete information.

URSCHEL LABORATORIES INC.
VALPARAISO INDIANA

Designers and manufacturers of precision, high speed cutting equipment for food products

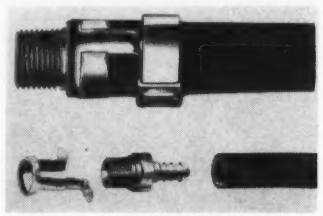
"Visit us at Urschel Booth No. 29, Conrad Hilton Hotel, Chicago, January 23-26, 1961"

7475 on Reader Service Slip.

a positive lock to the hose nipple.

In addition to the conventional nipple and clamp, the metal collar (yoke) and its two anchoring bands are placed over the end of inserted nipple. Two anchoring bands extend along the outside of the hose and a second clamp holds the collar in place.

Band-It "piggyback" Tri Lokt assembly consists of one



Anchoring force of the collar holds the nipple in place

hose nipple, a yoke and two Band-It Jr. stainless steel clamps. Available in five sizes, ½ to one inch inside diameter. All five sizes are supplied in either American or British taper pipe threads.

Supplier: Band-It Company, 4777 Dahlia St., Denver, Colo.

7344 on Reader Service Slip.

An aid to selecting flexible shafting

A simplified approach to the selection of flexible shafting through standard, pre-engineered or custom-designed flexible shafts is featured data of a 90-page "Flexible Shaft Handbook", issued by S. S. White Industrial Division.

Descriptive material, charts, tables and drawings are provided to aid in the selection. Data also includes information on simplified engaging system based on integral formed square drives and remote control and powerdrive flexible shafts.

Standard shafts are complete, ready-to-establish units available directly from stock. Pre-engineered flexible shafts are unit combinations of shaft, casing and fitting based on designs proven in service. These can be assembled quickly for delivery.

The custom-designed flex-

Famous for protection ...

The super-lubricating film of--

ORANGE SOLID OIL

is famous for protecting machinery

Saves bearings, material, power, time...and...labor. Lasts two to four times as long as ordinary greases. Keeps production--UP! Maintenance repairs--DOWN!

To young and old, from coast to coast--the policeman with his traditional star is a symbol of protection. From one end of the country to the other the super lubricating, long lasting film of Orange Solid Oil is also famous--for protecting vital equipment. And today it is better than ever. It has been improved to give it greater clarity, brilliance, transparency--plus increased lubricating, sealing, waterproof and rust protection properties. Because Orange Solid Oil does an outstanding job...and stays on the job four times longer--it is used and recommended by leading manufacturers of dairy, cheese, creamery, ice cream, and food equipment.

1--Pure, unadulterated petroleum solidified oil.
2--Practically odorless, tasteless, and transparent.
3--Won't turn rancid--free of animal and vegetable fat.
4--Cannot pit bearings--contains no alkalis.
5--Non-corrosive--will not gum, cake, dry, or harden.
6--Contains no fillers or abrasive of any kind.
*7--For all **Alemite** and Zerk fittings and grease cups.*

To minimize production down-time...reduce maintenance costs...and...keep your output at top level--lubricate with famous, time tested, job-proved Orange Solid Oil.

Over 200 leading distributors from Maine to California stock Orange Solid Oil. Packed in 4 oz. tubes...and...1, 10, 25, 100, 225, and 375 pound containers. Quick delivery from your local distributor. If he can't fill your order--phone, wire, or write for name of your nearest source of supply.

For additional protection use special purpose-- ORANGE HOMOGENIZER OIL NO. 50
• Refined from aircraft stock • Does not foam • Moisture resistant • Will not form residues or sludges.

***ORANGE MULTI-PURPOSE LUBRICANT**--ideal for small industries. One inch graduated filling spout perfect for lubricating electric motors, other appliances. 8 oz. tubes, packed 12 to the carton.*

Famous Lubricants Inc.
Phone--BOulevard 8-2555
124-132 West 47th Street • Chicago 9, Illinois

7345 on Reader Service Slip.

ible shafts are to meet specialized conditions such as heavy volume requirements.

One section of the handbook provides general information on flexible shafts. This section describes in detail the advantages of flexible shafts, their function and successful applications.

7346 on Reader Service Slip.

Open plugged drains with air impact

Clogged drains and pipe lines can be more effectively cleaned with a hydraulic shock wave. Thus the need to probe and gouge debris loose, is eliminated.

The job is accomplished with a tool known as a Hydraulic Water Ram. It consists of a small manual air pump, air pressure tank, and rubber hose at the end.

The hose is attached to a hydrant or other opening leading to an obstruction. Then 10 to 150 pounds of air pressure is pumped into the tank. The amount of air is varied according to severity of the blockage.

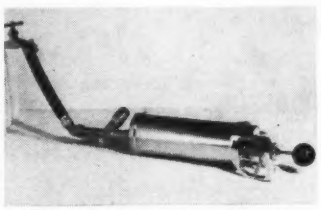


Photo shows a water ram connected to a hydrant and ready for pressure release

A trigger releases the charge of air into the pipe system and the resulting pressure surge creates a shock wave similar to a water hammer. Shock waves will shatter usual forms of clogging debris and loosened particles are flushed out of the system.

This treatment can be applied to drains and sewers by using an accessory which will adapt the tool for use with openings from 1½ to 4 inches.

Supplier: Hydraulic Manufacturing Co., 138 Hurd Ave., Bridgeport 4, Conn.

7347 on Reader Service Slip.

ALERT BUYERS NOW GET AN EXTRA 20%

*Extra*coat is the controlled application of thicker wear coating on the palm side of industrial gloves. The gloves wear 20% longer and give better protection. This Edmont process further increases the 40% to 70% cost savings which are typical where Edmont job-fitted gloves replace older types. How much would you save your company, or your employees, by reducing glove costs 40% or more?

SNORKEL

SUPER-FLEXIBLE VINYL plastic coating with excellent wet grip. 2-piece jersey liner and seamless palm for extra dexterity and comfort. 6 *Extra*coated styles.

MONKEY GRIP

TOUGH VINYL PLASTIC for extreme abrasion resistance. 2-piece easy-flex liner increases flexibility. 10 *Extra*coated styles, including triple-thick palms.

NEOX

REINFORCED NEOPRENE gives best all purpose protection against solvents, snagging, abrasion and heat. 8 *Extra*coated styles.

GRAB-IT

ROUGH FINISH natural rubber coating provides unequalled grip, wet or dry, resists cutting and abrasion and cushions against shock. 8 *Extra*coated styles.

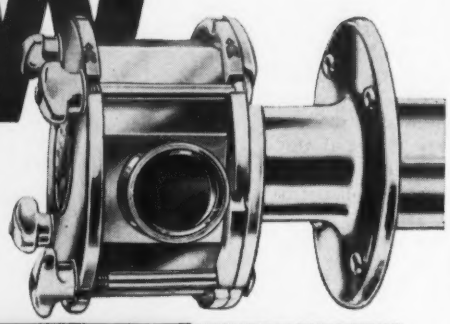
All the above gloves have wing thumb and curved, preflexed fingers for comfort and handling ease.

FREE TEST OFFER TO LISTED FIRMS: Tell us your operation. From more than 50 *Extra*coated and vinyl impregnated styles, we will recommend correct gloves and supply samples for on-the-job testing. Write Edmont Inc., 1212 Walnut Street, Coshocton, Ohio. In Canada, write Edmont Canada Ltd., Cowansville, Quebec.

Edmont JOB-FITTED GLOVES

7348 on Reader Service Slip.

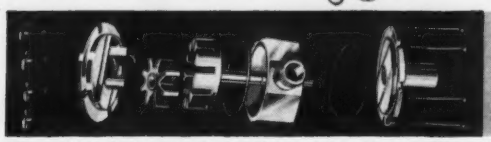
NEW



VIKING

OPPOSITE PORT "SANITOR"

THE POSITIVE PUMP FOR EASIEST CLEANING



SIMPLE TAKE DOWN OF "SANITOR" PUMP PARTS

The positive discharge and smooth, even flow of Viking Opposite Port "Sanitor" Pumps is only a part of the reasons why Vikings will serve you best. You can't beat "Sanitors" for easy disassembling. You can do it in less than a minute. For cleaning and reassembling, it's a cinch. No tools are needed. You have no threads, deep O-ring grooves or splines in the pumping zone to make for hard cleaning. Remove one bolt and turn pump for horizontal or vertical ports. They give extra long service, and there is no need to return "Sanitors" to factory for repairs. It's the simple, sturdy, truly sanitary pump for milk and other food products.

MEETS 3A SANITARY STANDARDS

For complete information, send today for catalog FEP.

50 YEARS

VIKING PUMP COMPANY

Cedar Falls, Iowa, U.S.A. • In Canada, it's "ROTO-KING" Pumps

See Our Catalog In Sweet's Plant Engineer's File

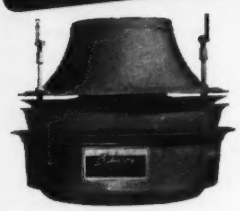
7349 on Reader Service Slip.

Bahnson

WATER or STEAM **UNIT HUMIDIFIERS**

prevent spoilage, dehydration, costly processing and storage problems with

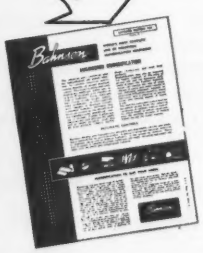
LOW-COST HUMIDITY CONTROL



TYPE E

- Guaranteed, self-contained water or steam units have low first cost, low operating cost.
- Automatic controls.
- Easy to install; need only water or steam supply, drain, electrical connection.

FREE BOOKLET



Send for your free catalog. Details, illustrates full line of 14 humidifiers to fit every need, any size area. Clip coupon to letterhead and mail.

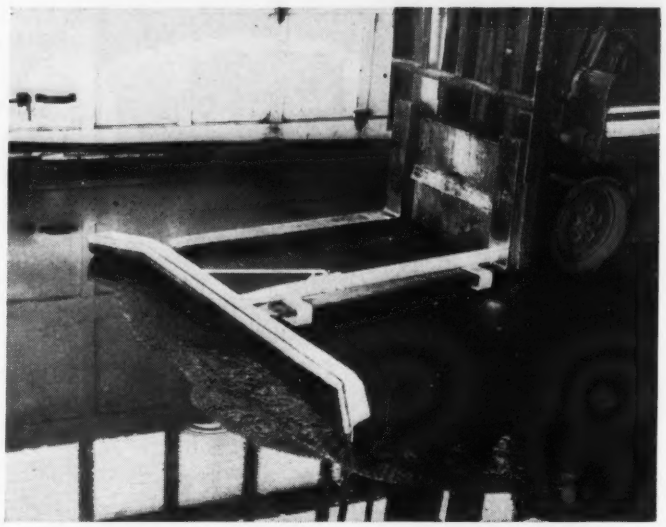
NAME_____

THE BAHNSON COMPANY

WINSTON-SALEM, N. C.

F-8-J

7350 on Reader Service Slip.



Squeegee larger areas in less time

A SIX-FOOT WIDE floor squeegee saves time and labor in food and beverage plants, where floor cleaning or water on the floor may be a major cleanup problem.

A simple clamp is used to attach the squeegee frame to one prong of a fork truck. Fork truck then pushes the squeegee along to remove suds, snow or water. Waste may be ejected to either side or pushed straight by pivoting the blade to various angles.

The Squeeg-Eez has a solid rubber blade, curved at both ends and flexible enough to adjust to rough floor surfaces. Worn rubber blades can be replaced with the use of simple tools.

Supplier: Squeeg-Eez Company, 1269 Burton S. W., Grand Rapids, Mich.

7351 on Reader Service Slip.

Fiberglass ladder is nonconductor

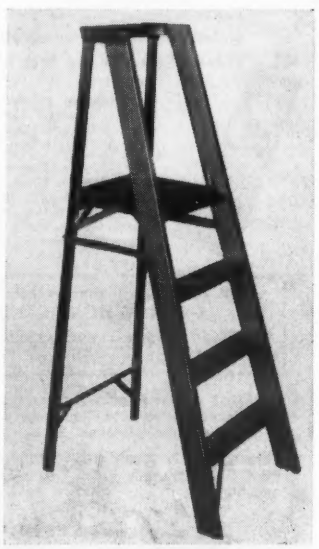
Fiberglass safety platform ladder is a nonconductor of electricity and nonabsorbent. Designed for use around high voltage. Resists the effects of moisture, chemicals, acids and corrosive fumes.

Steps and platform are of nonslip design and the top of the ladder serves as a safety rail.

The ladder is comparable in weight and strength to an equivalent all aluminum unit. Called an Alco-Lite P-400, available in 4′ to 10′ heights and meets ASA Code.

Supplier: Aluminum Ladder Company, Dept. F 36, West Darlington St., Ext., Florence, South Carolina.

7352 on Reader Service Slip.



Aluminum steps, platform and side rails are riveted to fiberglass side rails

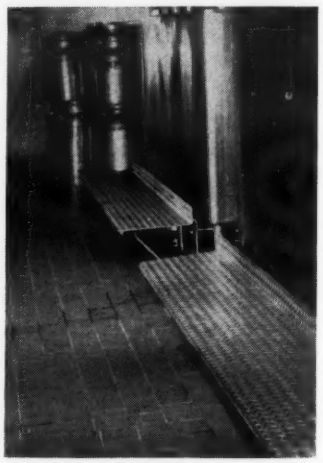
Stainless floor plate resists corrosion

Stainless steel floor plate resists the corrosive action of chemicals, water, heat, dirt and weather. Plates may be used for any kind of flat deck work such as equipment stands, catwalks etc.

The noncorrosive nature of stainless steel eliminates need to paint the plates and provides for a more attractive installation.

It is easily formed or bent and a continuous pattern allows easy matching when installed end to end or side by side.

The Super Diamond plate is available in three grades of



Stainless steel plate used as equipment in a large ice cream plant is easy to keep clean

stainless steel, 302, 304 and 316. Also a variety of thicknesses are provided ranging from 16 gauge to ⅜ inch.

Supplier: Eastern Stainless Steel Corp., 122 Rolling Mill Ave., Baltimore 3, Md.

7353 on Reader Service Slip.

Low-pressure, re-usable hose fittings

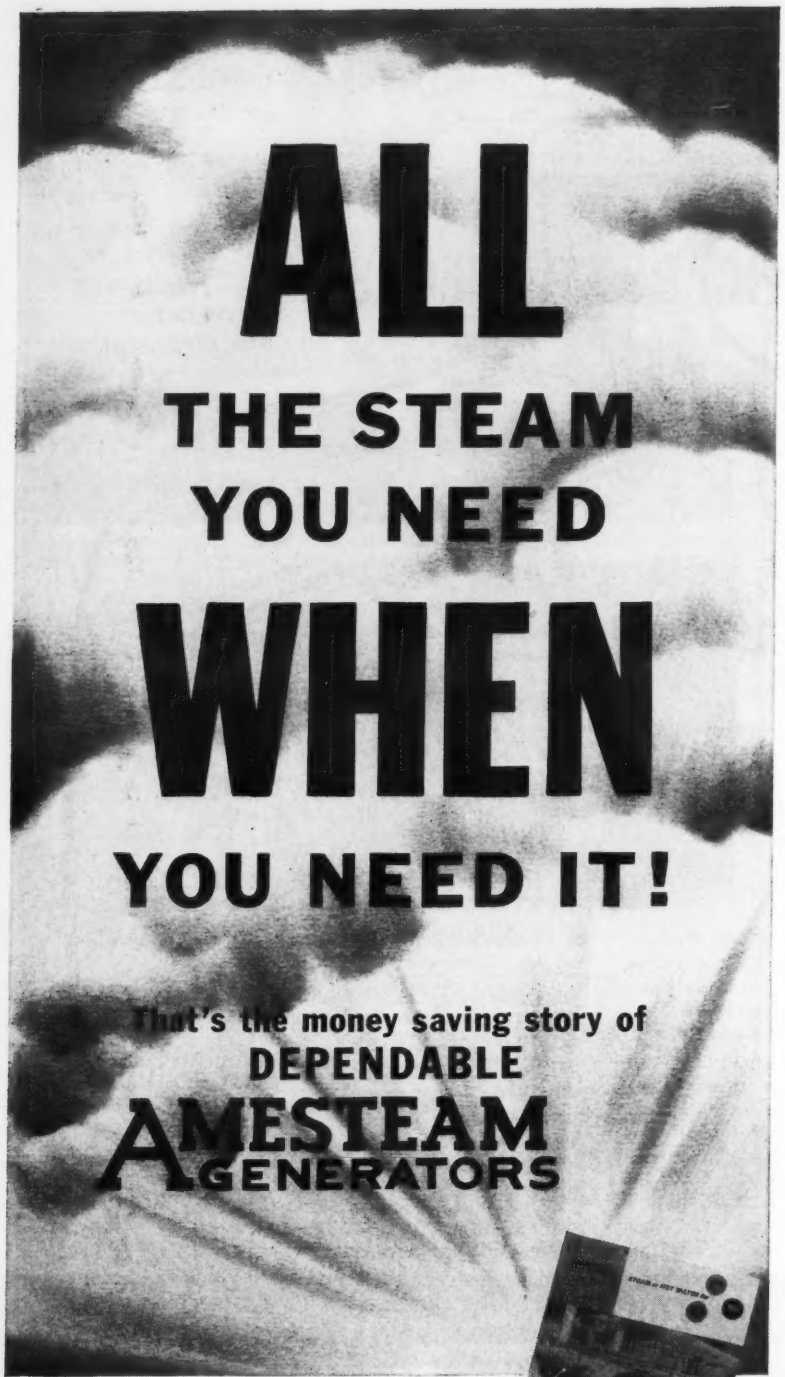
Low-pressure, re-usable hose fittings for one and two rayon braid hose are described and illustrated in a 12-page catalog issued by The Lenz Company.

Catalog of sizes and specifications contains data on re-

ENDS TRAFFIC BOTTLENECKS
The PREST-O-MATIC® Door takes the STOP out of "Stop and Go" traffic
Quick-acting PREST-O-MATIC Cooler, Freezer and Non-insulated Doors work *for* you — not *against* you. Fully automatic, they prevent slow-downs and bottlenecks—save you man hours aplenty.
Your fork truck driver simply pulls an overhead cord and goes through the opened door without stopping. The door opens and closes *Prest-O-Matically* in as little as 2 seconds. Compare this with manual doors that require your driver to stop, dismount, open the door, return to the truck, drive through . . . then stop to close the door again! Multiply this waste motion by the number of trips per day . . . per *year*.
Engineered to snug-fit your doorways, PREST-O-MATIC remains tightly closed when not in use. Neoprene Sealing stops drafts, eliminates heat or air-conditioning loss.
Complete in one easy-to-install unit. No extras to buy. Available in Bifold and Sliding. You choose the motive power —air or electric. Before you buy any door, get all the facts on PREST-O-MATIC. See our insert in Sweet's Catalog or, better still, write us today.
CLARK DOOR COMPANY, INC. since 1878
518 Hunterdon St., Newark 8, N. J.
Prest-O-Matic® Single Sliding Cooler Door.
Air Operated Prest-O-Matic® Non-insulated Double Sliding Door

SEE US AT BOOTH NO. 1061, PLANT MAINTENANCE SHOW.

7354 on Reader Service Slip.



Write today for this helpful bulletin
"Steam or Hot Water for Power, Heat, Process"

AMES IRON WORKS, INC.

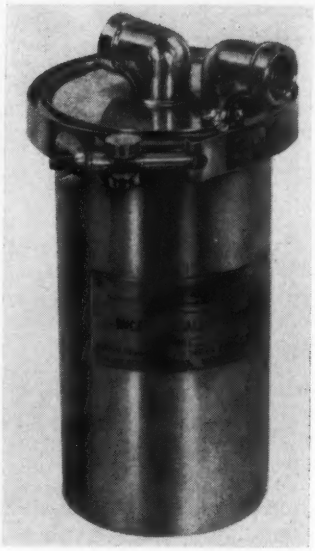
BOX Q-11 OSWEGO, NEW YORK

7355 on Reader Service Slip.

usable low-pressure hose couplings, union swivel adapters and hose assemblies in one and two rayon with reusable couplings.

Also included are oxygen and acetylene couplings and connectors, paint spray air hose couplings and connections, male and female hose stems, joiners, adapters, hex pipe nipples and pipe reducing connectors.

7356 on Reader Service Slip.



Easy removal of filter bowl to replace core is accomplished by loosening quick release clamp

Change filter cores in a few seconds

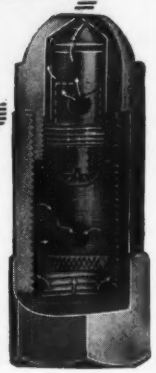
A quick opening filter makes rapid removal of bowl and replacement of the core possible. This feature permits the bowl to drop from filter cap without disturbing pipe connections.

The bowl is fabricated from stainless steel. Porous metal filter elements of varied designs are used in the unit to remove a wide range of particle sizes. Typical examples are diatomaceous earth, scale, lint and ion exchange particles.

Some current applications of the filter to food processes

"Look what accompanied that last shipment of beef cattle!"

There's a *Monarch* nozzle for every spray job!



If the liquid can be sprayed with direct-pressure rely on MONARCH advanced design NOZZLES

For a perfect spray, many food processing plants prefer Monarch Nozzles.

Monarch's advanced design reduces clogging and guarantees dependable applications to . . .

★ WAX FRUITS
★ RINSE VEGETABLES
★ POWDER MILK
★ DRY EGGS
★ WASH FILTER CAKE
★ HUMIDIFY BANANA ROOMS

Send for Catalog 1

Monarch
MFG. WORKS, INC.
3401 GAUL STREET
PHILADELPHIA 34, PA.

7357 on Reader Service Slip.

are whiskey and beer polishing. The unit could also be applied to filtering vegetable oils, fruit juices, milk and sugar solutions.

Standard processing models permit pressures of 125 or 300 psi. Pipe sizes range from one-quarter inch to one-and-a-half inches and the flow rates range from 3 to 5 gpm(per square foot of filter area).

Supplier: Micro Metallic Division of Pall Corp., Glen Cove, N. Y.

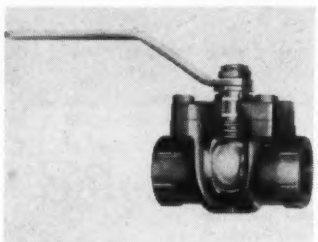
7358 on Reader Service Slip.

Ball valve designed for easy maintenance

A ball valve has been designed so that the top can be removed for inspection or to replace interior parts without removing the valve from the line.

It will handle liquids, slurries, semisolids and corrosive chemicals up to 700 psi. The valve offers features such as quick opening or closing and opening or closing with a quarter turn.

A low pressure drop is an additional feature which results from low resistance to flow. Teflon seals offer a non-



Cutaway view shows ball valve in open position

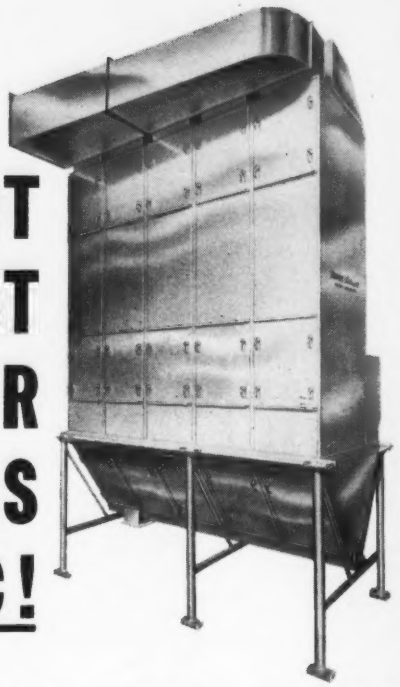
corrosive, low friction ball socket which may be easily replaced.

The valve is available with flanged ends in sizes from 1 inch to 6 inches. Also, available with threaded ends in sizes from 1 inch to 3 inches. It is constructed of steel, bronze or 303 and 316 stainless steel.

Supplier: Hills-McCanna Co., 4600 Touhy Ave., Chicago 46, Ill.

7359 on Reader Service Slip.

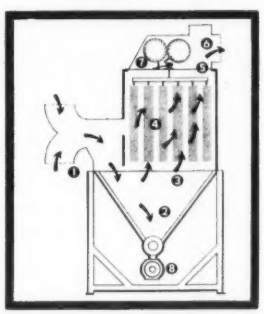
NEW TORIT DUST COLLECTOR IS AUTOMATIC!



Save real dollars with the benefits from this *automatic* dust collector. No more interruptions on production lines! Maintenance problems are practically eliminated. This all new continuously cycling TORIT dust collector *automatically* cleans your air and *automatically* shakes its own filters and blows them clean with reverse air flow. Collected material is emptied *automatically*.

OTHER EXCLUSIVE TORIT BENEFITS

- automatic filter-shaker mechanism is simple, maintenance-free
- different dusts may be collected separately
- highest air-to-cloth ratios (from 5 to 25:1) and longer filter life
- only ¾ H.P. required for fully automatic operation
- polished 3/16" aluminum construction for minimum floor loading
- modular design—5' wide x 4'-8" long (for two sections) x 15'-6" high—saves space, lends ease and versatility to installation. Use up to 12 modular sections for each application! No limit to CFM capacity!



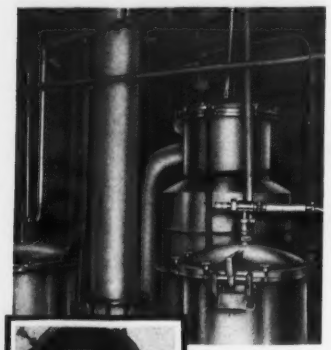
AUTOMATIC AND EFFICIENT, the filtering cycle of each TORIT section is self-timing. A separate blower on the clean air side keeps collector under suction. Then, (1) dust-laden air is taken into manifold; (2) coarse dust drops out; (3) fine dust is carried to filtering sections; (4) filter tubes catch dust on inside surfaces; (5) clean air emerges from filters; (6) to suction fan and clean air discharge outlet. (7) *Automatic* shaking and reverse air filter cleaning mechanism. (8) Conveyor *automatically* removes and discharges accumulated dust.

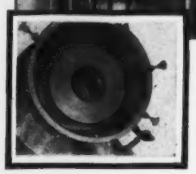
Have a cleaner plant, better morale and high productivity with lowest maintenance costs. Special design services are available based on your individual requirements. Write today for literature.

TORIT MANUFACTURING COMPANY
Automatic Collector Division, 1133 Rankin St., St. Paul 16, Minn., Dept. 834

7423 on Reader Service Slip.

NEW MOJONNIER EVAPORATOR





View at Kraft Foods Co., Dunkirk, N.Y.

Saves 50% of Steam Cost at

KRAFT

Grape Juice Plant

Another major processing first from Mojonnier — Evaporator and Essence Recovery combined in one unit.

Mojonnier's exclusive entrainment separator recovers 99.99% total solids even when unit operates at full capacity. Designed for CIP, easy dismantling.

• Uses only 50% of steam and cooling water needed by less efficient units. • Concentrates raw grape juice, 2000 GPH, down to 46% Brix. • Recovers, cools 100-fold essence down to 35°. • More efficient flavor recovery (99%)

Mojonnier
QUALITY ENGINEERED FOR ECONOMY

Write:
MOJONNIER BROS. CO.
4601 W. OHIO ST.
CHICAGO 44, ILLINOIS

EVAPORATOR-ESSENCE RECOVERY EQUIPMENT

7424 on Reader Service Slip.

to help make
YOUR brand
the one
they like best
check up on
SPRAY NOZZLES
To improve product quality and lower spraying costs, Spraying Systems offers the advantages of advanced design and better performance. Typical applications include mixing, washing, cooling and spray drying. We also offer spray nozzles to meet unusual conditions such as high abrasion or extremely fine atomization.
SPRAYING SYSTEMS CO.
3213 Randolph St. • Bellwood, Ill.
WRITE FOR CATALOG 24 forty-eight pages of complete data on thousands of types and capacities.
ADVANCED SPRAY NOZZLE DESIGN
FOR NEW DIMENSIONS
IN CONTROL AND PERFORMANCE

7425 on Reader Service Slip.

Ultrasonic beam passing between two acoustic sensor pods, foreground, will sense liquids or solids, opaque or transparent materials. Control unit behind pods can be installed in any position; houses power supply, output relay and transistorized amplifier

Invisible control beam cuts through any atmosphere

Non-contacting, ultrasonic sensing system useful in

- **bin-level control**
- **packaging line control**

ULTRASONIC sensing system can be used for automatic weighing, automatic counting, package routing, size control, bin-level control and even burglar protection.

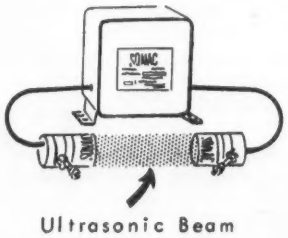
Since system uses beam of high-frequency sound waves rather than light waves, its operation is unaffected by vibration, dust, smoke, steam or other air contaminators. Even normal build-up of residual solids on face of acoustic "lens" will not hamper its operation.

Relatively simple Sonac Ultrasonic Sensor system, made by Delavan Manufacturing Company, Electro-Sonic Division, West Des Moines, Iowa, consists of only three parts: two matched, hermetically sealed sensor pods, 1⅜ in. diam by 2 7/16 in. long, and an aluminum control box, 5 in. by 5 in. by 5 in.

Sonac system has count rate up to 800 cycles per minute; requires a beam interruption of only 0.05 seconds to operate relay.

Sensor pods, which will operate in temperature range of 220 F to −100 F, can be mounted as close as 0.25 in. Standard maximum distance apart is 20 ft. Pods

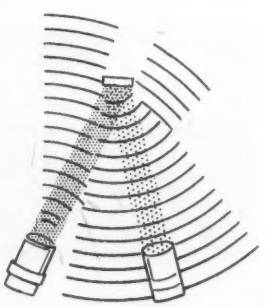
First sensor receives electrical energy from control unit, converts it to ultrasonic energy, and emits it as a continuous beam of ultrasonic waves.
Second sensor receives this beam of ultrasonic waves, and converts its energy back to electrical energy. This electrical energy is sent back to the control unit, thus making a closed loop



Ultrasonic Beam

Sensors may be mounted to provide a direct path for ultrasonic beam, below, or a reflected path, right. Latter method is particularly effective in counting or sensing small objects

Effective Area



can be installed to provide a direct or reflected beam, see diagrams below.

For applications requiring beam paths over 20 ft in length, or narrow concentration of beam in paths less than 20 ft, sensors can be equipped with small parabolic reflectors which provide a narrower, longer beam.

In areas where space is a problem, coupling sensors can be used to "pipe" sound to otherwise inaccessible locations.

Beam of ultrasonic energy is transmitted from first sensor at an angle of approximately 50° (10° for narrow, long-range beam). However, any object large enough to cover active area of second sensor — which is 1 in. diam — will break beam.

Breaking beam de-energizes output relay, thereby operating desired external function such as light, buzzer or switch.

Principle can also be used in reverse, that is, to sense removal of an object from beam. In that case, with object obstructing beam, normal operation occurs with output relay de-energized. Removal of object opens path for beam and energizes relay.

7426 on Reader Service Slip.

Versatile, short-cycle cutter-mixer for small batches

Cuts, mixes or kneads in less than two-minute cycles

Uses: For cutting, mixing and emulsifying small batches of sausage meats; can also be used for beating or kneading dough and preparing confectionary fillings.

Features: Operating cycles of Schnellkutter are very short. Machine will cut, mix or blend a complete wiener or bologna sausage emulsion in two minutes, three minutes when uncut, frozen meat trimmings are used.

Meat is cut cleanly and uniformly by high-speed knives.

Beater shaft, which mounts

Sales-proved clarity and longer shelf life with Celite Filtration

Products such as juices, jellies, salad and cooking oils require sparkling clarity to sell. Filter them with Celite® diatomite and they'll surely stand out in any company. Celite gives them the brilliant clarity that makes shoppers stop and take notice. And it does this at the lowest possible cost.

Celite filters out the most minute solids and impurities which could otherwise affect clarity and shorten shelf life. What's more, it provides a truly polished appearance at the fastest flow rates obtainable. Filtering with Celite is a trouble-free, virtually automatic process. With the widest selection of standard and special grades from the most dependable diatomite source in the field, Celite will give you the exact degree of clarity desired. And, in addition, Celite grades now include Celite perlite. See your J-M Filtration Engineer for full details or write Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ontario.

Celite Division filter aids, when used as such, are not considered food additives as defined by FD&C Act Amended, Section 201(s).

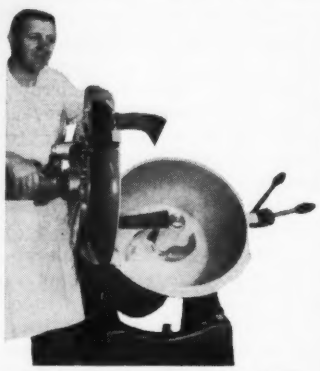
JOHNS-MANVILLE JM PRODUCTS

7427 on Reader Service Slip.

directly on motor-drive shaft, replaces knives for beating and/or mixing. For doughs or confectionary fillings, operating cycles range from 1½ to 2 minutes.

Other accessories include a grater shaft for grating potatoes, a homogenizer baffle, an ice-crusher baffle and a slicing and grating attachment.

Operation: Bowl of Schnellkutter does not turn, only the two knives do. Knives are mounted directly on motor shaft and are in constant contact with product. They rotate



Bowl tips for easy unloading. Model SKU-60E shown here has 125-lb capacity. Knives are powered by 17/25.5-hp, 1800/3600-rpm motor. Mixing plows are powered by a ½-hp, reversible gear motor

at 3500 rpm, slicing meat at a speed in excess of 100 ft/sec.

Knives are pitched to cause movement of material down center of bowl, outward and upward along sides of bowl.

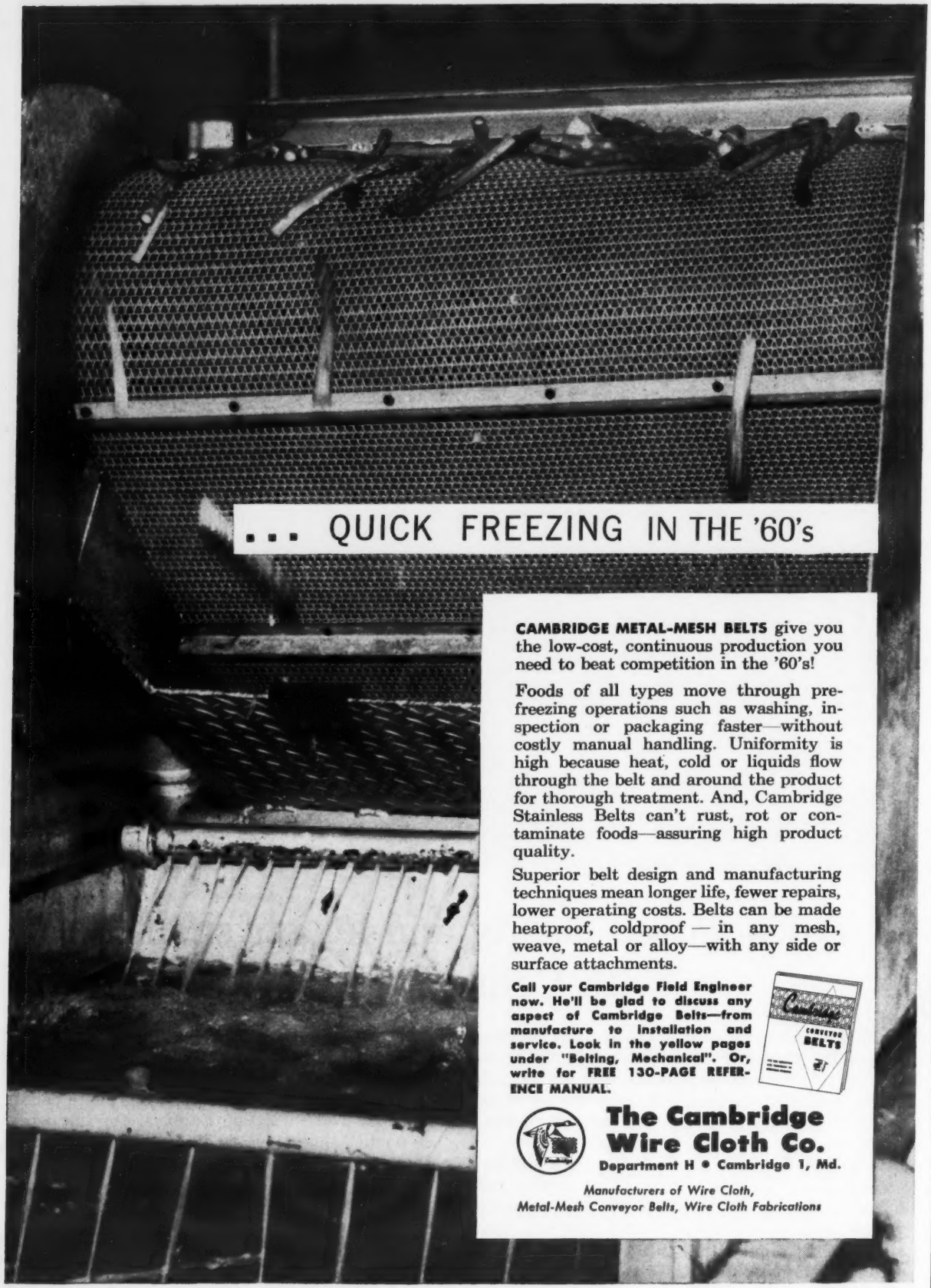
Description: Schnellkutters are made in four models with bowl capacities ranging from 50 to 125 lb. The two smaller models are mobile.

Two larger models have motorized baffles. In addition, they are made with vacuum seals on cover and furnished with connections for operating under vacuum, inert gas or carbon dioxide.

Supplier: Koch Equipment Co., Division of Koch Supplies, Inc., 2520 Holmes St., Kansas City 8, Mo.

7429 on Reader Service Slip.

For more information on product at right, circle 7430 . . . see information request blank opposite last page.


... QUICK FREEZING IN THE '60's
CAMBRIDGE METAL-MESH BELTS give you the low-cost, continuous production you need to beat competition in the '60's!
Foods of all types move through pre-freezing operations such as washing, inspection or packaging faster—without costly manual handling. Uniformity is high because heat, cold or liquids flow through the belt and around the product for thorough treatment. And, Cambridge Stainless Belts can't rust, rot or contaminate foods—assuring high product quality.
Superior belt design and manufacturing techniques mean longer life, fewer repairs, lower operating costs. Belts can be made heatproof, coldproof — in any mesh, weave, metal or alloy—with any side or surface attachments.
Call your Cambridge Field Engineer now. He'll be glad to discuss any aspect of Cambridge Belts—from manufacture to installation and service. Look in the yellow pages under "Belting, Mechanical". Or, write for FREE 130-PAGE REFERENCE MANUAL.
CONVEYOR BELTS
The Cambridge Wire Cloth Co.
Department H • Cambridge 1, Md.
Manufacturers of Wire Cloth, Metal-Mesh Conveyor Belts, Wire Cloth Fabrications
7428 on Reader Service Slip.

Quick color stability test devised by National Aniline detects unstable color overnight. National FD&C Yellow #6 (right) remains in solution indefinitely. Other (left) precipitates in six hours. To make this test yourself, write for our simple procedure.

Improved stability where stability matters most!

Developed to meet the critical needs of soft drink makers, National FD&C Yellow #6 exhibits the highest degree of compatibility with other ingredients in orange-beverage concentrates.

This is important not only to soft-drink makers but to all users of food colors because it demonstrates once again our close familiarity with your problems. In helping to solve them, we make available to you thoroughly experienced technicians and completely equipped laboratories devoted to the increasingly exacting science of food-color application.

Whether you need help in formulating shades or have a more complex problem, we will gladly work with you. Since this outstanding technical service costs you no more, it always pays to call National Aniline first!

NATIONAL®
CERTIFIED
FOOD COLORS

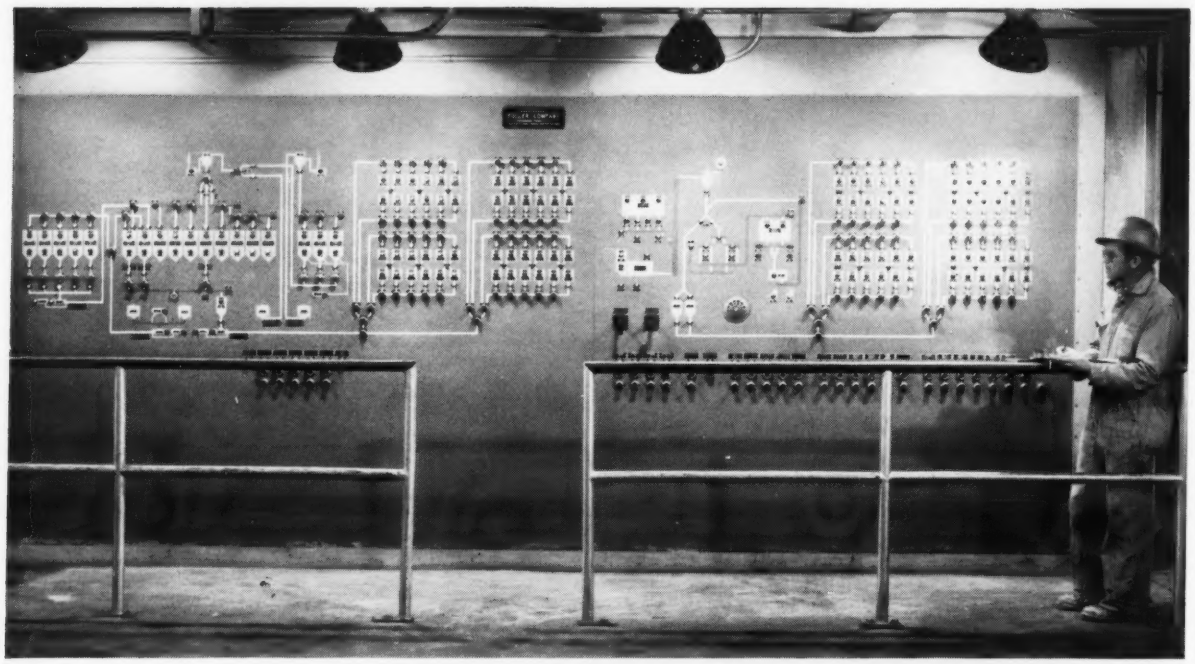
NATIONAL ANILINE DIVISION
40 RECTOR STREET, NEW YORK 6, N. Y.
Atlanta Boston Charlotte Chicago Dallas Greensboro
Los Angeles Philadelphia Portland, Ore. Providence San Francisco
In Canada: ALLIED CHEMICAL CANADA, LTD.,
1450 City Councillors St., Montreal 2 100 North Queen St., Toronto 18
Distributors throughout the world. For information:
ALLIED CHEMICAL INTERNATIONAL • 40 Rector St., New York 6, N. Y.

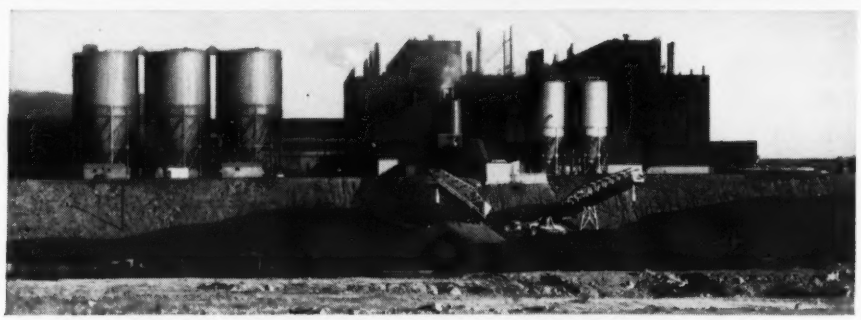
Allied Chemical

More "PAY-DIRT" With Fuller Panels In Control

One man on watch—and a Fuller Control Panel in control. Result: the flow of bulk, dry materials in a pneumatic conveying system graphically illustrated by diagrams and indication lights that track process transitions from phase to phase—without human errors!

Fuller Control Panels—automatic, remote, one-man control of multiple operations—stem from Fuller's vast materials handling and instrumentation experience. Fuller, the only manufacturer of pneumatic conveying equipment engaged in engineering and building its own control panels, puts its cumulative experience into each project. This single knowledgeable responsibility for both system and control means savings in time and costs. More important—it's your assurance that the total system is generic to your specific operational needs.





Look to Fuller's engineering-manufacturing team to develop the simplest possible control system without costly duplication or changes for you. Write for Bulletin G-9, today.

FULLER COMPANY GENERAL AMERICAN TRADE MARK

FULLER COMPANY
176 Bridge St., Catasauqua, Pa.
Subsidiary of General American Transportation Corporation
Offices in Principal Cities Throughout the World

Fuller
....pioneers in harnessing AIR

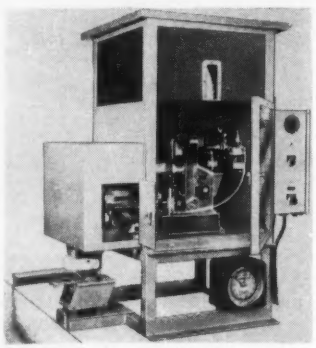
2635
CP-2

7431 on Reader Service Slip.

Weighs free-flowing solids continuously and precisely

Uses: Continuous weighing machine is designed to improve quality control by assuring that high-concentrate dry additives are evenly and thoroughly distributed in mixing and batching operations.

Features-Description: Fully automatic in operation, unit dumps precisely net-weighed quantities at uniform time intervals into processing lines operating by conveyor, pipeline or other continuous-flow method.



Entire unit may be caster mounted for easy transfer from one storage hopper to another

When placed over a product stream, a precision scale, with over-and-under indicator, weighs precise amounts of the additive in net-weigh hopper.

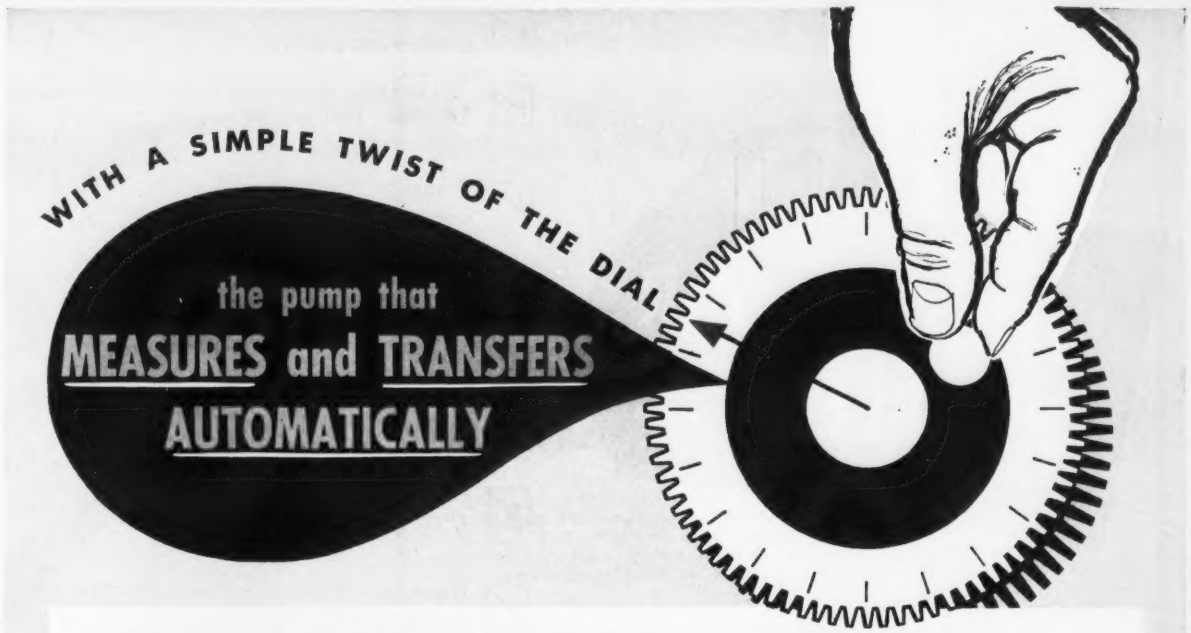
An air-operated mechanism then dumps the additive into a small, secondary hopper, which, in turn, feeds the additive into a vibratory feeder. From here, additive is introduced into continuous processing line in a uniform, even flow.

Versatile design of unit permits handling a wide variety of products in quantities from one oz to three lb, and three lb to ten lb. Supply hoppers and feeder conveyors are available in various capacities as required.

Multiple units of two or more machines may be combined to increase the number of weighments per min without sacrifice of accuracy.

Supplier: The Exact Weight Scale Co., 538 East Town St., Columbus 15, Ohio.

7432 on Reader Service Slip.



WAUKESHA ACCURACY WITHIN 0.5%

MFC-250 metered flow control pump

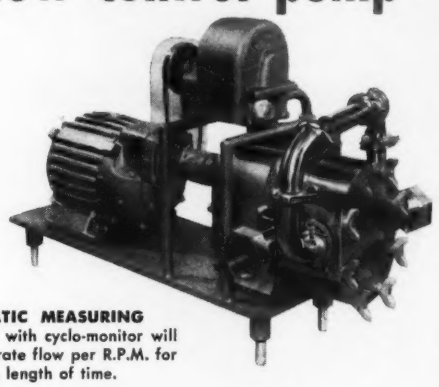
PAT. APPLIED FOR

Now — the first positive displacement pump that both measures and transfers. *Now* — accurate batch measurements with the simple twist of a dial . . . assures product quality — always. No sub-standard batches — ever. Replaces your present transfer pump . . . automates your product stream. Hundreds of uses — wherever a product is measured with accuracy and transferred with care.

The MFC-250 is made of corrosion resistant (fully sanitary 3A approved) 316 Stainless Steel. A new "dualobe" rubber impeller is featured on the MFC 250 and assures a quiet, less turbulent transfer of product.

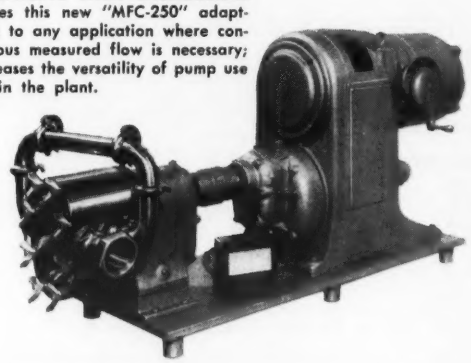
Let a Waukesha engineer consult with you . . . show you how the MFC-250 can "automate" your processing system.

Write for Bulletin P-320 today.



AUTOMATIC MEASURING gearhead with cyclo-monitor will give accurate flow per R.P.M. for any given length of time.

VARI-DRIVE WITH TACHOMETER makes this new "MFC-250" adaptable to any application where continuous measured flow is necessary; increases the versatility of pump use within the plant.



VISIT US AT THE CANNERS SHOW, BOOTH 37

WAUKESHA

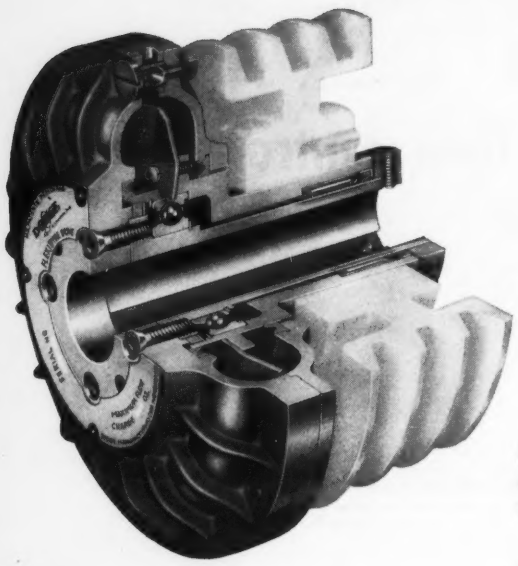
WAUKESHA FOUNDRY COMPANY
Dept. 86, Pump Division, Waukesha, Wisconsin

INTERNATIONAL SALES: FMC International, Box 1178, San Jose, California, U. S. A.

7433 on Reader Service Slip.

WHAT'S YOUR PROBLEM?...

- ☑ Overheated motors?
- ☑ Excessive belt maintenance?
- ☑ Breakage of materials being processed —like thread, wire, paper?
- ☑ Expense of oversize or high torque motors?
- ☑ High demand rate?
- ☑ Expense of reduced voltage starters?
- ☑ Clutch trouble?
- ☑ Breakage of transmission parts due to instantaneous shock loads?
- ☑ Damage and recurring down-time from overloads?



FLEXIDYNE

THE DRY FLUID DRIVE

It is no longer necessary to accept the destructiveness—the costliness—of conventional starting in the mechanical transmission of power. Flexidyne changes that!

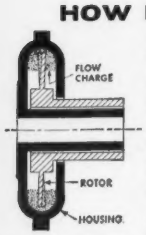
Flexidyne is the new way to start loads *smoothly*—to protect against shock and overload—to save power—all *without any sacrifice of efficiency at full load!*

This revolutionary development is ushering in "the day of the soft start"—which can mean thousands of dollars to you in equipment savings and in better, more economical operation.

Flexidyne is available, off the shelf, in Drives and Couplings. Capacities range from fractional to 1,000 hp. Ask your local Dodge Distributor or write us for technical bulletin.

DODGE MANUFACTURING CORPORATION, 2400 Union St., Mishawaka, Ind.

HOW FLEXIDYNE WORKS



The "dry fluid" in Flexidyne is tiny heat-treated steel shot. A measured amount, called the "flow charge," is contained in the housing, which is keyed to the motor shaft. Inside the housing is a rotor, free to revolve relative to the housing, but connected to the load.

When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor, which transmits power to the load. Initial slippage is momentary. Housing and rotor become locked together and achieve full load speed without slip and at 100% efficiency.

CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the *white* pages of your telephone directory, or in the yellow pages under "Power Transmission Machinery."

DODGE

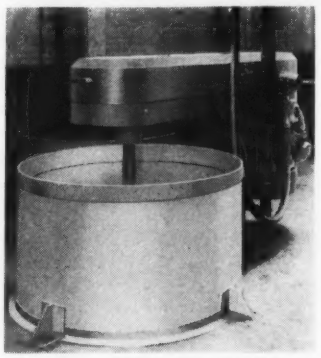
of Mishawaka, Ind.

7434 on Reader Service Slip.

processing

Save floor space with 66-in. travel dissolver

Dissolver features an hydraulic lift mechanism which provides 66 in. of vertical travel for mixing head. Floor space can thus be saved by installing dissolvers on upper floors, walkways or balconies.



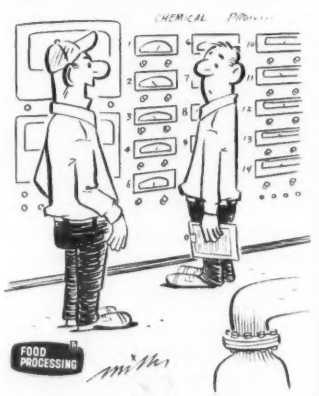
Impeller can be swung 270° for multi-tank operation

Lift also facilitates lowering impeller into tanks which are installed through floor.

Dissolvers are available in 40 to 75-hp sizes. Drive systems are capable of delivering over 90 per cent of motor horsepower to impeller and speeds can be changed without stopping.

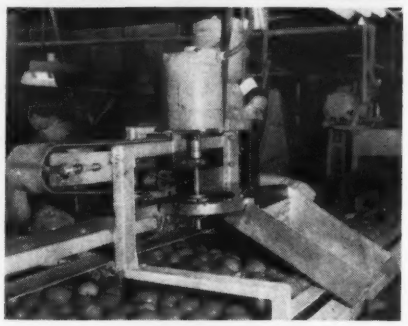
Supplier: Morehouse-Cowles, Inc., 1150 San Fernando Rd., Los Angeles 65, Calif.

7435 on Reader Service Slip.



"Automatic, my eye! You still have to press a button, don't you?"

Mechanical tomato trimmer straddles sorting-trimming conveyor. Tomatoes which require cutting are placed, bad spots down, on trimmer's 14 ft belt conveyor.



Sanitary belt feeds tomatoes into SS circular knife. Acceptable portion of fruit is returned to main conveyor; unacceptable, trimmed-off portion is ejected by knife and slides through chute into waste trough

"Cuts" trimming costs by 25 per cent

Compact mechanical tomato trimmer simplifies trimming, increases over-all capacity of lines

FRANK L. BONEM
Associate Editor

Problem-Solution: One way to keep overall production costs from rising is to use new mechanical equipment as it becomes available. Naas Foods, Inc., did just that when it installed mechanical tomato trimmers on the three lines of its Sugar Loaf Division plant in Sunman, Ind.

Two of these lines are used for preparing tomatoes for processing into catsup and must keep up with a production rate that has gone as high as 186 bottle/min for 20 oz bottles and 270 bottles/min for 14 oz bottles.

Third line prepares tomatoes for chili sauce, cocktail sauce and the plant's specialty — "Sauce Arturo."

In operation, tomatoes with bad spots are now trimmed mechanically, see photos above.

After being placed on belt conveyor of trimmer by inspectors, tomatoes are engaged by a spring-loaded positioning belt. Located directly above

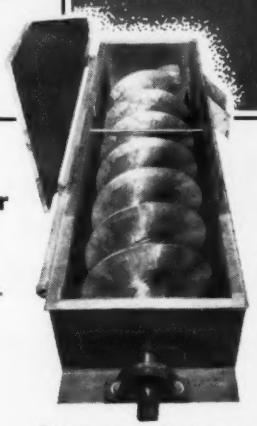
Rietz

STANDS FOR SERVICE TO FOOD PROCESS INDUSTRIES

From its major facilities in Santa Rosa, California and West Chester, Pennsylvania — and its field engineering and service offices in Chicago, Houston, Seattle and Los Angeles — Rietz has supplied size reduction, mixing and heat exchange equipment to

THE MOST IMPORTANT FOOD COMPANIES IN THE WORLD

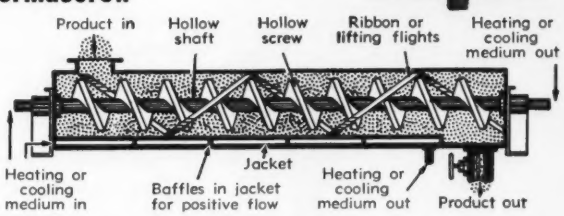
Two examples . . . . .



RIETZ Steam and Water Blancher

Sanitary, stainless steel construction, easily accessible for cleaning.
High volume, low velocity steam injection reduces blanch time — will not damage product.
Positive conveying action assures uniform blanch. Compact, efficient replacement for belt and reel blanchers . . . lower installation and operating cost.

RIETZ Thermascrew



Designed with hollow screw and jacketed trough for greater efficiency in the operations of

HEATING • COOLING • EVAPORATING OF SOLIDS, SLURRIES AND LIQUIDS

Rietz MANUFACTURING CO.
Santa Rosa, Calif. • West Chester, Penna.
DISINTEGRATORS • PREBREAKERS • EXTRUCTORS • THERMASCREWS

7360 on Reader Service Slip.

conveyor belt, positioning belt adjusts automatically to height of tomatoes and excerts a gentle pressure to keep tomatoes from shifting out of position as they are moved into trimming knife.

Trimmer, which is made by F. H. Langsenkamp Company, 229 E. South St., Indianapolis 25, Ind., is only 7½ in. wide, 26 in. height and ten ft long.

Machine's knife is set ½ in. above conveyor belt. It can be adjusted, however, to take a cut from ⅜ in. to ⅝ in. in height. Bottom surface of knife is roughened to whip out waste portion of tomatoes.

Results: According to Mr. Howard Osburn, plant manager: "Eliminating tedious manual trimming has saved us a good 25 per cent in trimming and sorting labor costs. It has also helped speed up overall production rate of the lines."

In addition, states Mr. Osburn: "The formerly messy re-trimming operation, where whole tomatoes waiting to be trimmed were buried underneath trimmings, has been eliminated."

7362 on Reader Service Slip.

Detects small ferrous or non-ferrous particles

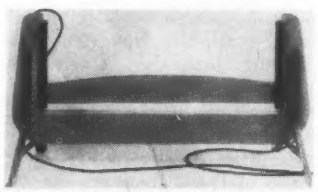
Uses: For finding metal particles in food products moving on belt or similar conveyors.

Features: Instrument detects ferrous particles whose smallest dimension is 0.063 in. and non-ferrous particles whose smallest dimension is 0.085 in.

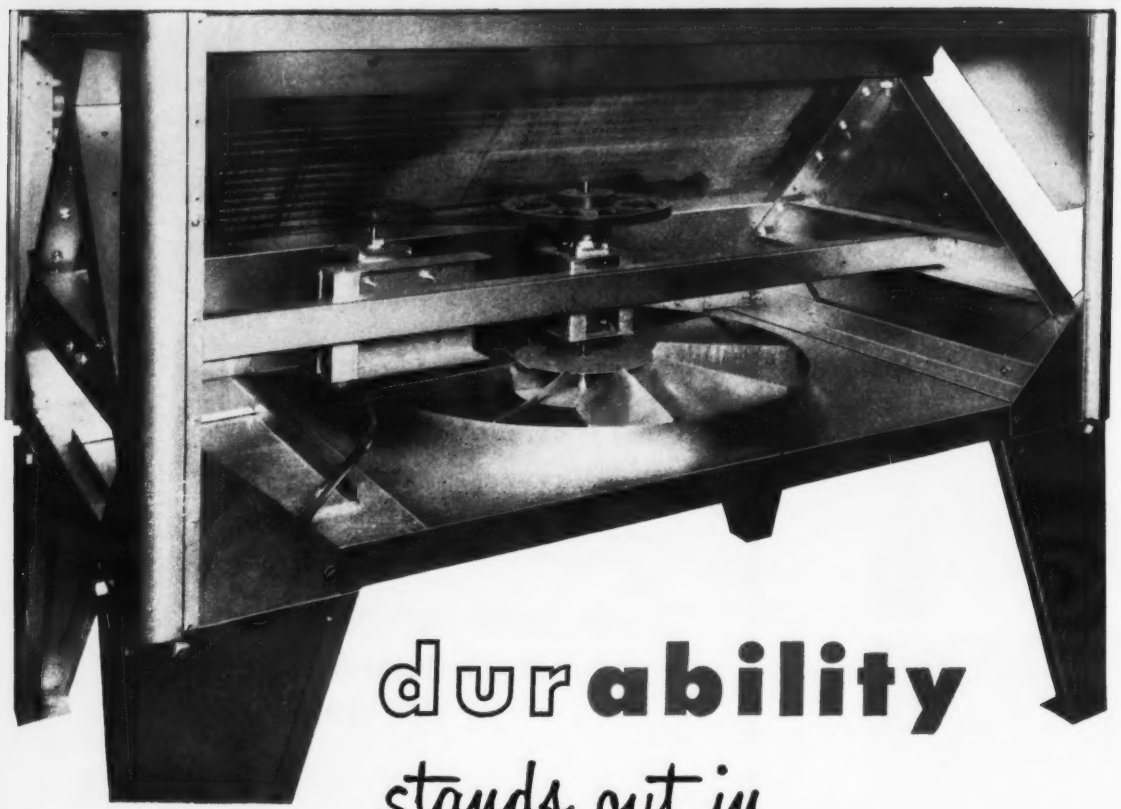
Relay-controlled AC outlet can be used to stop conveyor, sound an alarm or activate an ejector mechanism.

Description: Model 200A metal detector consists of a coil system and dust-proof

continued on page 74



Metal detector provides inspection aperatures up to 11 in.



durability stands out in

Marley Series B DriCooler

AIR COOLED CONDENSERS

Ask the Marley Man (or write) for Bulletin DC-60 that explains why DriCoolers also have outstanding . . .

capability
adaptability
compatability
controlability

Rugged, rigid construction is the basic premise of Series B DriCooler design, in which Marley engineers considered only the full-day, full-year type of service demanded of condensers in supermarket and similar heavy-duty commercial installations.

Coils, fans and drive elements all were selected after exhaustive testing for ability to "stand up and take it." They are housed in a frame engineered of heavy angles and sheets hot dip galvanized after fabrication. These components are welded and bolted to form a super-sturdy, unitized structure in which casing panels have no supporting function.

The result: a shake-proof, quake-proof, leak-proof condenser that is free from vibration and rattle . . . one that will quietly deliver full performance year after year after year.

U. S and Foreign Patents Pending

THE MARLEY COMPANY MARLEY KANSAS CITY 14, MISSOURI

7361 on Reader Service Slip.

Association News

Bulk Packaging and Containerization Institute

is name of entirely new trade group organized on November 18 to deal with new concepts in shipping containers and practices. The Association expects to serve users as well as manufacturers of many types of bulk containers which are relatively new and not now covered by existing associations. The Institute will serve as a clearing house for information on all such containers, and will aid in establishing acceptable specifications. Glenn Mather is managing director of the new Institute, whose address is P.O. Box 3444, Grand Central Station, New York 17, N.Y.

Dr. H. C. Diehl

chairman of the Frozen Food All-Industry Coordinating Committee received the "Man of the Year" award at the annual award dinner of the Frozen Food Assn. of Del-

aware Valley, held in Philadelphia. He charged the three-state group to cooperate with the All-Industry Committee in protecting and improving frozen food quality, and pointed out that the alternative was compulsory governmental regulation.

Tea Assn. of the U.S.A., Inc.

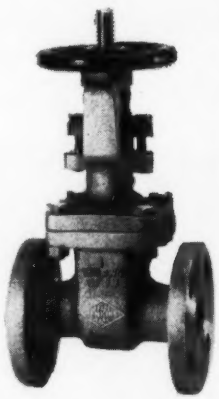
has elected as president W. Gardner Barker, president of Thomas J. Lipton, Inc.

For more information on product at right, circle 7363 see information request blank opposite last page.

For 99 out of 100. . .

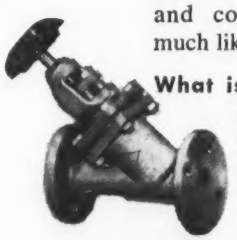
Selection of Stainless Steel Valves can be as simple as selection of Bronze and Iron valves

HOW to keep it simple? Don't let the wide selection of stainless steel alloys "throw you"!

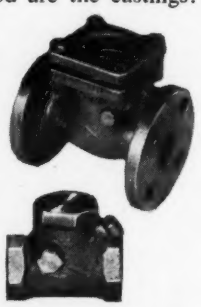


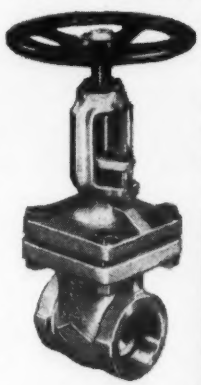
Most of the alloy specs were developed to meet certain highly specialized and rather uncommon needs. Only 1 out of 100 valve users can make practical use of many of the alloys. *Actually, just two or three of the different available alloys will give a big majority of valve users all they want and need.*

You can judge DESIGN differences between the various "makes" exactly as you do it with Bronze and Iron valves. Look them over and compare. Basically, of course, a Stainless Steel valve is designed and constructed very much like other valves.

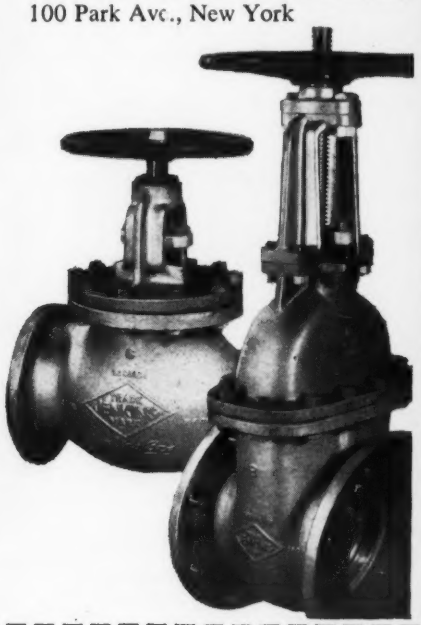


What is left to worry about in addition to Material and Design? The same factors you consider in buying ANY valves for long, dependable performance: Are the valves made merely good enough, or to a standard that demands an extra-measure of quality? How good are the castings? How precise and perfect is the machining? How rigid is the inspection and testing during manufacture? These are the factors which specs can't cover. Some of them you can't see when you look at the valve. But you KNOW how to make sure they measure-up to peak standards. You know that the name JENKINS VALVES and the famous Jenkins DIAMOND trademark have been the highest assurance of quality for nearly a century.





Specify "Jenkins" as well as the metal alloy to assure fullest satisfaction. Your Jenkins Distributor has patterns and alloys to satisfy most industrial needs. Of course, they meet valve industry specifications and the high standards established by leading users of stainless steel valves. Jenkins Bros., 100 Park Ave., New York



Jenkins Bros.
100 Park Ave., New York 17.
Send Jenkins Stainless Steel Valve Catalog to —

Name & Title.....

Company.....

Address.....

JENKINS VALVES

JENKINS SINCE 1864 Jenkins Bros

control box. Box provides for simple pre-operational adjustments to specific applications.

Coil system comprises one fixed and one movable head, and is intended for use on conveyor belts up to 3 ft wide. Other coil-system configurations are available upon request.

Supplier: Electro-Mechanical Research, Inc., Ascop Division, Princeton, N. J.

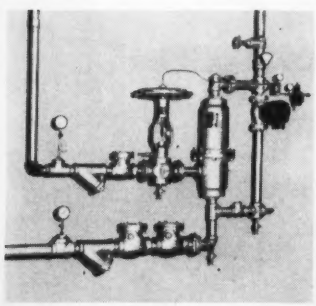
7364 on Reader Service Slip.

Instant hot water, from 500 to 50,000 gph

Steam-injection water heaters will maintain temperatures within three degrees of setting, from full capacity down to five per cent of rating. Mixers can be operated on low pressure steam (from 5 to 15 psi) and high pressure steam (30 to 300 psi).

Eight standard sizes of steam and water blenders are fully described and illustrated in eight-page catalog, released by Pick Manufacturing Company, Water Heater Division.

Literature contains one page of diagramatic illustrations

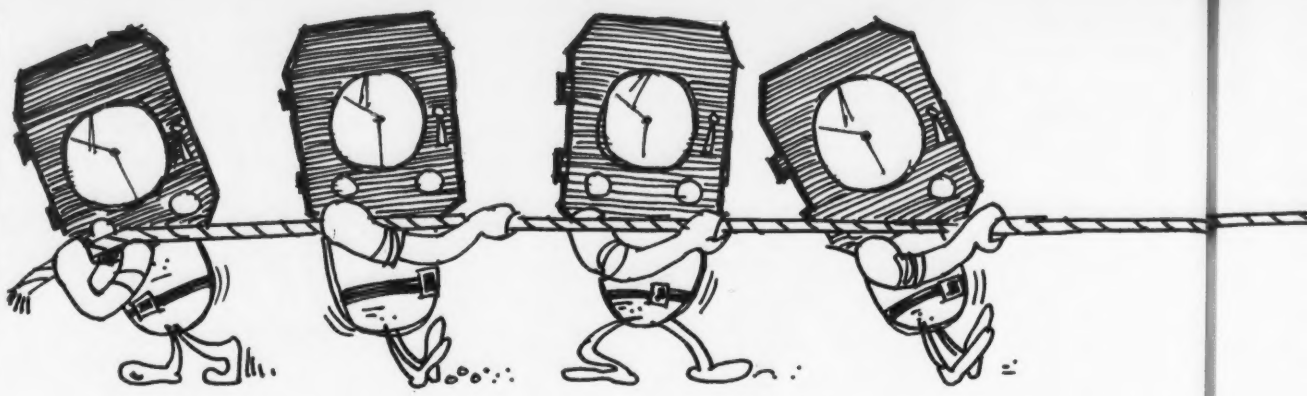


Recently introduced low-pressure steam-water blender requires only three pipe connections; can operate on pressures as low as 5 psi

which show how heaters are piped for direct, circulating, accumulator tank and booster installations.

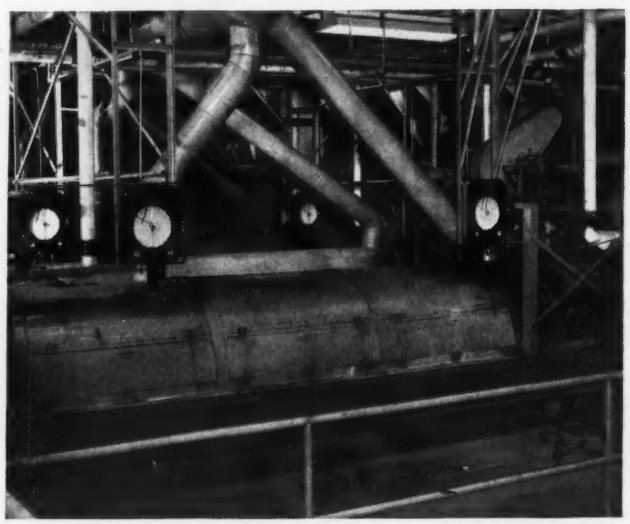
There is a table which shows steam requirements for heating water from 300 to 30,000 gph with temperature rises from 20 to 140 degrees. A second table lists capacities in gpm for desired temperatures.

7365 on Reader Service Slip.



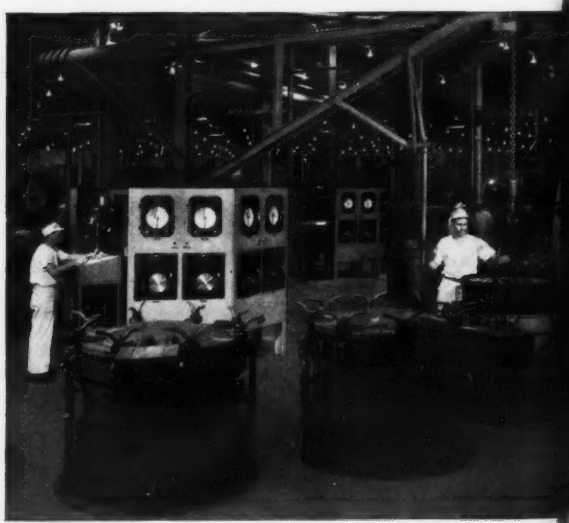
Let *Taylor* help you hold the line on costs...

BLANCHING



Dual Blancher control system. Taylor controllers and valves maintain exact temperature throughout the entire blanching operation by controlling it at both inlet and outlet ends. This insures firmness, color and texture in the finished product.

RETORTING



Taylor SPW-7AV fully automatic Retort Control System regula temperatures throughout the pre-heat, cooking and cooling periods times the entire cycle. There are a variety of Taylor Control Systems modernize your present equipment.

Taylor Instrument

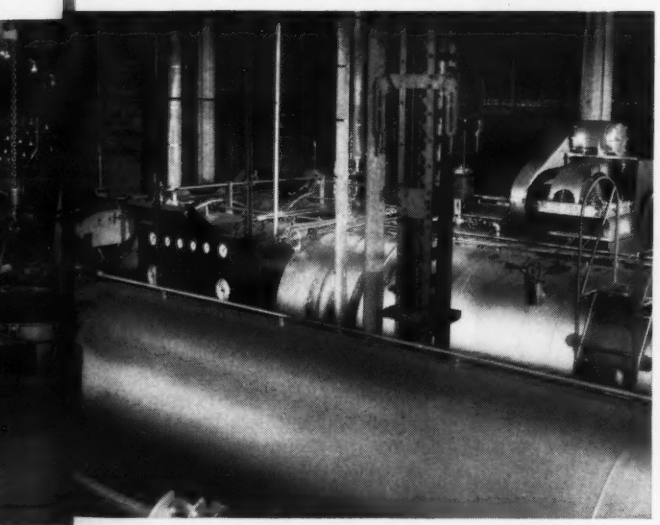
. . . And a Taylor control system will help you hold the line on profits too, because it will assure you of a uniformly high quality product.

Whatever your control needs are, from simple regulation of hot water temperature to the most complete continuous processing control, there's a Taylor system designed for the job—and proven on the job.

When you specify Taylor you're buying not only the most dependably accurate instrumentation, you're getting the benefit of years of experience in serving all facets of the food processing industry. Just call your Taylor Field Engineer, or write for **Catalog 500.** Taylor Instrument Companies, Rochester, New York, or Toronto, Ontario.

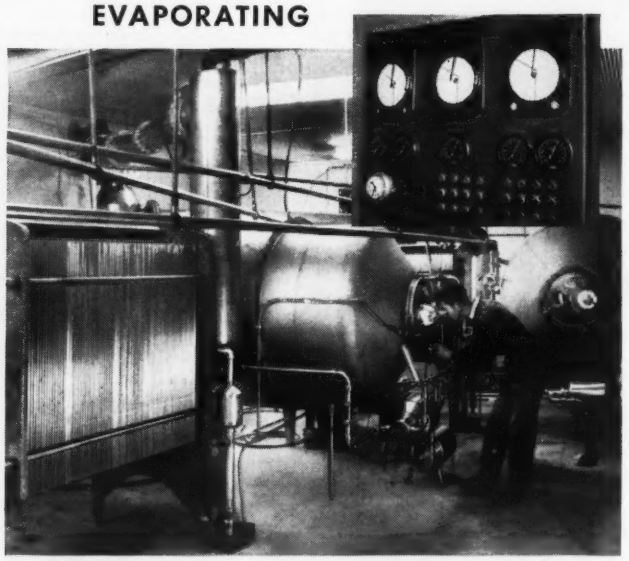
Be sure to visit the Taylor Booth (No. 2) at the Canners' Show

CONTINUOUS STERILIZING



Continuous Cooker and Cooler Lines under Taylor control. With this modern continuous sterilization method precise temperature control is all-important. Taylor controls help insure the maximum possible return on your equipment.

EVAPORATING



Double-effect plate evaporator in use on citrus concentrate. Taylor control system regulates juice temperatures and provides accurate records of vapor temperatures. Whatever method of evaporating you use, there is a Taylor System to keep it operating at top efficiency.

MEAN ACCURACY FIRST

7366 on Reader Service Slip.

Flexible, wrap-around drum heaters

Uses: For heating fats, molasses and other highly viscous products.

Features: Flexible heating bands can be wrapped around

Number of heating bands to be used around drum depends upon temperature desired

drums and easily attached with simple spring coupling.

Heaters will warm drum contents to desired temperature or maintain even temperature of already warm product.

Heating bands are designed to fit steel drums from 21½ to 23½ in. diameter and have rating of 1000 watts at 115 V.

Description: Electro-Flex Drum heaters are 2½ in. wide. They are made from vulcanized silicone rubber, fibre glass, cloth and metal-screen laminate and are grounded for safety.

Supplier: Electro-Flex Heat, Inc., 83 Woodbine St., Hartford 6, Conn.

7367 on Reader Service Slip.

Steam @ 90c per lb?

Last month, in describing the new Henszey DR Evaporator, cost of steam was given at 90 cents per pound. This should have read 90 cents per 1000 pounds.

HOW MUCH DOES A CONSUMER COMPLAINT COST?

A LITTLE CARE IN THE CHOICE OF YOUR SUPPLIER WILL GO FAR IN CUTTING COMPLAINTS AND REJECTS.

That's why Precision Valve Corporation takes a lot of care in processing their valves . . . quality controls at every step of the way reduce the chances of rejects to a minimum, and continuing research reduces the minimum.

Take care... take Precision Valves for your aerosol products.

PRECISION VALVE CORPORATION
700 Nepperhan Avenue, Yonkers, N.Y.

7368 on Reader Service Slip.

Automatic weighing of liquid ingredients

Especially suitable for ice-cream mix batching, system has reproducibility of 1/10 of 1% capacity range

Features: System automatically controls weighing of up to five liquids in fixed sequence. It also automatically lists accumulative weights after addition of each material. All that is required by operator is setting of desired weights of each ingredient.

Liquids are automatically fed into weigh hopper on a full-flow and dribble-flow basis, each one being cut off when correct weight is reached. To compensate for amount of material between feed valve and weigh hopper, adjustable pre-act controls are incorporated.

Weighing is precise. Scale has reproducibility of 1/10 of 1 per cent of dial capacity throughout range.

Dial capacity of Model 3281-9330 hopper scale is 5000 lb by 5 lb and gross capacity is 6250 lb.

Description: Weighing installation of Toledo Remocon Control System essentially consists of single hopper scale with lever system, control and operating station, manual operating station for mounting near scale and recording station.

At recorder station, remote-operated recording machine lists accumulative weight after each liquid is weighed into tank. Last figure on machine tape is total batch weight.

Control and operating station contains necessary relays, buttons and pilot lights for automatic accumulative weighing.

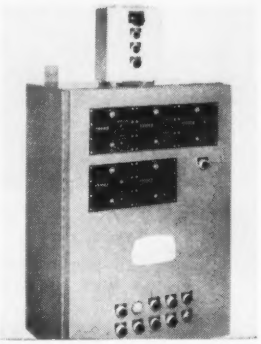
Relays compare two voltages: one voltage which is transmitted from scale and is porportional to weight, and one voltage that is proportional to weight set on vernier weight selector. When the two voltages are of equal magnitude, feed valve is cut off.

Upon completion of cycle, visual and audio signals are given.

Any ingredient can be cut out of batch and system is

interlocked to prevent opening of feed valves in case weigh-tank discharge valve is not closed.

Fail-safe circuit, which will stop system in case of power



Control and operating station has five panels, one for each ingredient. Each panel has in-out switch, cycling pilot light, cut-off knob with vernier indication, pre-act knob and dribble knob

failure, is designed to start cycle from point of interruption when operation can be resumed.

Supplier: Toledo Scale, Division of Toledo Scale Corporation, Toledo 12, Ohio.

7369 on Reader Service Slip.

Solid-level control has built-in safety

Paddle-type level control is designed to provide fail-safe operation. Should any portion of unit fail, control contacts operate automatically to establish same control circuit conditions which prevail during normal operation when material passes selected high or low levels.

Detailed description and method of operation of Fail-Safe Models L400 and L400A Material Level Controls are provided in two-page catalog sheet.

Released by Flo-Tronics, Inc., Electronic Controls Division, loose-leaf punched sheet tabulates specifications and presents illustrations of both models. Dimensions of models and methods of mounting are given in sketches.

7370 on Reader Service Slip.

NEW IMPROVED Votator® HEAT TRANSFER UNITS

SCRAPED SURFACE

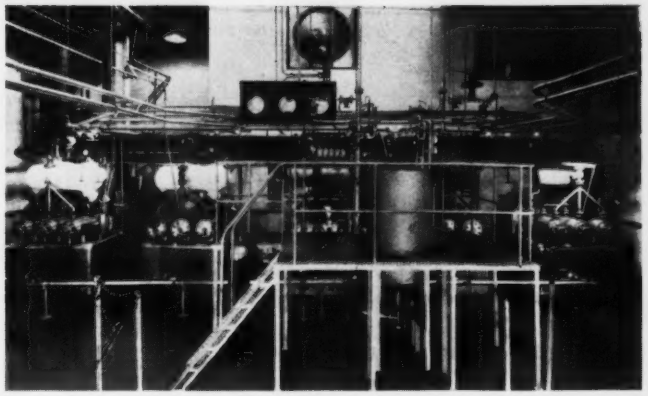
make tough jobs easier . . . more profitable

Really tough jobs which until now could not be handled in continuous systems are easy—like the precooling, seeding, crystallization and dispersion of honey at a temperature below 60°F. and the freezing of ice cream and ice milk to 17°F. Yes, very high viscosities can be processed now. Remember, if it can be pumped, it can usually be processed with better results in VOTATOR processing equipment.

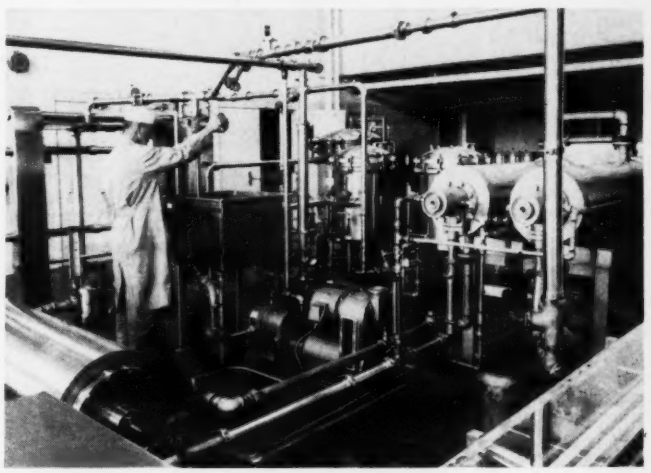
New concepts in VOTATOR designs offer greater advantages to food processors. Increased thruputs are now obtained when processing viscous materials and high solids slurries. Higher production per unit means valuable building space savings. In the new VOTATOR equipment lower power input makes more efficient use of heating or cooling mediums. Jobs like the cooling and homogenizing of peanut butter, the chilling and extrusion of gelatin and the cooking and cooling of starch paste for salad dressings are done better at less cost in VOTATOR continuous processing equipment.

VOTATOR processing systems provide the time-saving and labor-saving advantages of sanitary, closed, continuous processing. Precise control possible with VOTATOR equipment further assures top quality and uniformity.

Rugged, dependable VOTATOR equipment is fabricated by skilled craftsmen in strict compliance with ASME codes. A continuous research and development program to assure you of the most up-to-date equipment design for your requirements is in operation.



Continuous slush freezing of citrus concentrate with VOTATOR Equipment at Minute Maid, Plymouth, Florida.



Continuous crystallization of honey with VOTATOR Equipment at Manitoba Cooperative Honey Producers Ltd., Manitoba, Canada.

write for FREE

VOTATOR HEAT TRANSFER DATA BOOK PED238

GIRDLER PROCESS EQUIPMENT DIVISION

CHEMETRON CORPORATION

Louisville 1, Kentucky

CHEMETRON

Sales Offices: Louisville • New York

Chicago • Marietta (Georgia) • San Francisco

VOTATOR CONTINUOUS PROCESSING EQUIPMENT FOR CHEMICAL & FOOD INDUSTRIES • VOTATOR PISTON & GRAVITY FILLERS • VOTATOR PLANTS FOR FATTY OILS INDUSTRY • THERMEX DIELECTRIC HEATING EQUIPMENT

7371 on Reader Service Slip.

IF YOU
PROCESS • PACK • SHIP
FOOD

LA PORTE
FLEXIBLE STEEL
CONVEYOR BELTS

SAVE
TIME • MONEY

WHEN you consider the lower initial cost, reduced maintenance, faster and easier sterilizing, longer service and improved performance of La Porte Belts, it's easy to add up the savings on every application. Besides, the rugged, flexible steel mesh construction takes heavy loads and impacts in stride, and permits the circulation of air and liquids around products in process. The open mesh feature also permits cleaning with a steam gun while in motion and assures a positive drive of the La Porte Sprocket.

La Porte Conveyor Belts resist heat and cold and provide a perfectly flat surface for all types of containers, empty or filled, including shipping cartons.

If you freeze, can, dehydrate, pickle, package, store or ship food, it will pay you to use La Porte belts. Available in ½" x 1", or 1" x 1" in any length and practically any width. Ask your mill supplier or mail coupon for illustrated literature and prices.

MAIL COUPON TODAY

LA PORTE MAT & MFG. CO.
Box 124 Dept. A
La Porte, Indiana

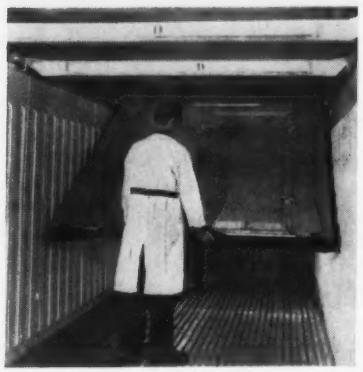
Please send free literature on your Conveyor Belt.

NAME_____

ADDRESS_____

CITY_____ STATE_____

7372 on Reader Service Slip.



Movable bulkheads permit mixed-temperature shipments

Rolling rails for fast, easy heavy-cargo loading

Rapid-loading, mixed-cargo reefer van

FRESH PERISHABLES and dry freight can be hauled in the same load with frozen foods when a new refrigerator van — employing a patented roller-and-track principle — is provided with one or more easily positioned insulated "bulkheads."

Same reefer van, equipped with rolling meat rails, can drastically reduce labor cost and turn-around time in loading and unloading meat or other heavy, hard-to-handle cargo.

Rails eliminate manual lifting and cargo-carrying within the van. Instead, heavy cargo, suspended from the rails, simply is pushed into its designated position in trailer interior.

Basic system consists of a track in each side wall of the trailer — in which roller-equipped insulated partitions or roller-equipped cargo rails are suspended as needed (or removed, as desired).

The track-mounted insulated partitions can be rolled by one man to any point in trailer, and locked in place — separating cargo requiring low temperatures from dry freight or produce. When not in use, partitions lock horizontally overhead.

For chain store or wholesale deliveries, one of the new vans, with one or more insulated partitions, can haul combinations of meat, frozen food, ice cream, staple groceries, etc., on the same trip — making unnecessary the duplication of routes of dry freight vans and refrigerated trailers.

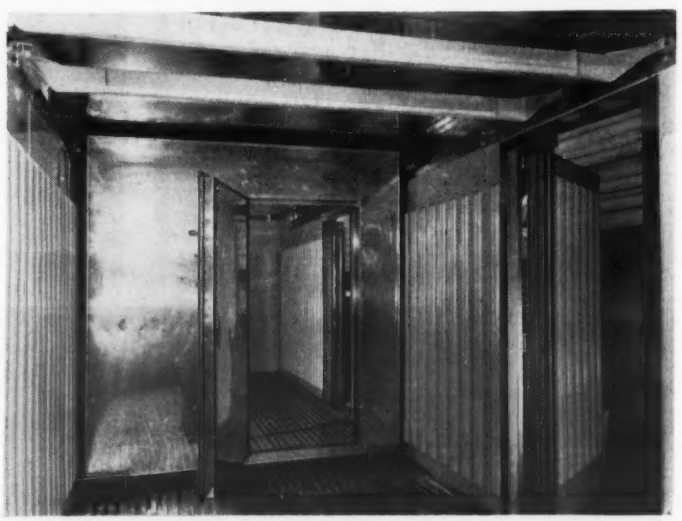
Where meat in carcass form, quarters or primal cuts is part of the shipment, time also is saved by loading the track-mounted rolling rails with meat consigned to stores in route order, and unloading one or two rails at each stop without having to work around the remaining cargo.

An important factor in speeding meat loading is an optional connector on which meat trolleys roll from the packing-house tramrail directly onto the trailer's meat rails.

In one test, two men loaded a roller-rail equipped trailer with dressed hogs in 18 min — a loading job ordinarily requiring 10 men working approximately 40 min.

In addition to meat, the roller-and-track principle can

continued on page 80



Same wall-mounted tracks which support the roller-suspended insulated partitions (one shown locked in place) also support the rolling meat rails visible in upper foreground

New-model refrigerator van with patented roller-and-track principle by Dorsey Trailers, a Subsidiary of The Dorsey Corp., 401 Hickman, Elba, Ala.
7373 on Reader Service Slip.

Association News

Grocery Manufacturers of America, Inc.

has re-elected Paul S. Willis president. Other officers elected: first vice president—H. J. Wolflisberg, president, The Nestle' Co., Inc.; second vice president—William T. Brady, board chairman, Corn Products Co.; third vice president—W. H. Burkhart, board chairman, Lever Brothers Co.; secretary—Harrison F. Dunning, executive vice president, Scott Paper Co.; treasurer—H. E. Meinhold, president, Duffy-Mott Co., Inc.

International Assn. of Milk and Food Sanitarians

has elected as president Dr. John J. Shuring, professor of dairying, University of Georgia. Charles E. Walton, Laramie, Wyo., is the new president-elect. The Sanitarians annual Citation Award was presented to Dr. Luther A. Black of the U.S. Public Health Service.

Baking Industry Sanitation Standards Committee

has re-elected as chairman Robert S. Taggart of National Biscuit Co., New York City. Two proposed standards reviewed and approved at the Committee's recent annual meeting were for Flour Handling Equipment and for Liquid Ferment and Continuous Mix Processing Equipment.

Dairy Society International

has elected as president a dairy farmer, Lyman D. McKee of Wisconsin, who also is president of American Dairy Assn. and of Madison Milk Producers Assn.

For more information on product at right, circle 7374 see information request blank opposite last page.

1. Performs like a regular fork lift truck . . .

2. Stacks *left* 90° in narrow 6′ aisles . . .

3. Stacks *right* 90° in same narrow aisles . . .

4. Drives loads into trailers and boxcars!

One truck . . . one operator . . . does all this!

(Only the new Towmotor "Naro-Aisle-Stack" Truck can!)

- **Only truck of its kind for narrow 6-foot aisle stacking**
- **One lift truck does the work 3 trucks usually do**
- **Makes 36.5% of "lost" space usable in average plant**

Amazing performance? You can't imagine what the "Naro-Aisle-Stack" lift truck will do until you actually see it . . .

See how it pivots loads a full 180° because it's equipped with hydraulic outriggers. See how it stacks materials left or right 90° and picks up loads from the same extreme angle. See how it also performs all other functions of regular fork lift trucks.

Most spectacular of all is the way it performs within the confines of narrow, six-foot aisles—enabling you to utilize storage space you considered "lost"!

Such unique operation is made possible only because "Naro-Aisle-Stack" trucks are equipped with *Towmotor Towmostatic Drive* — the only drive of its kind that eliminates clutch, transmission, drive line, differential and shifting mechanism.

Ask for booklet, "Captures Lost Space," describing the new series. Write Towmotor Corporation, Cleveland 10, Ohio.

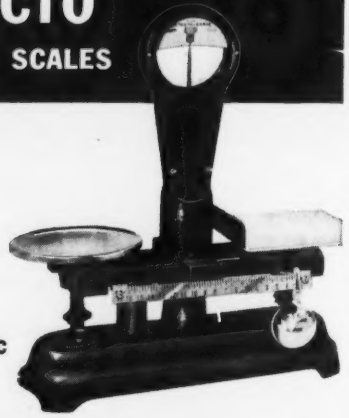
New Naro-Aisle-Stack Trucks made only by . . . TOWMOTOR THE ONE-MAN-GANG® -GERLINGER

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

This is how you read 1 oz. on ordinary scales

This is how you read 1 oz.

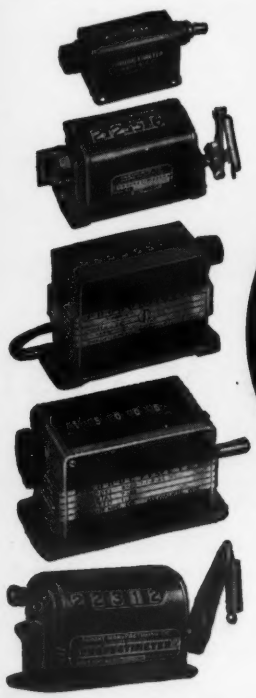
on **DETECTO**
OVER-UNDER SCALES



Big "travel" magnifies slightest weight discrepancy . . . prevents your profits dribbling away, ounce by ounce. Send for specifications.

DETECTO SCALES, INC
Dept. K-2,
540 Park Ave.
Brooklyn 5, N. Y.

7375 on Reader Service Slip.



Get the **COUNT!**

Durant Sales Engineers will supply a PRODUCTIMETER for every and any counting need in your plant

Send for Bulletin **#200**

DURANT
MANUFACTURING CO.
1951 N. Buffum St., Milwaukee 1, Wis.
51 Thurbers Ave., Providence 5, R.I.
Representatives in Principal Cities

DURANT
COUNTING INSTRUMENTS

7376 on Reader Service Slip.

material handling

be engineered to facilitate loading and unloading of other heavy and hard-to-handle types of cargo.

Both the rolling meat rails and rail-mounted partitions are optional equipment — priced separately from the track-equipped trailer — so that a purchaser can order to fit his operation, or buy them as additional accessories at a later date. END

Describes mechanized bulk storage systems

Three-color, 16-page bulletin MU-107, issued by A. O. Smith Corp., Harvestore Products Div., describes and illustrates Permaglas, mechanized bulk storage systems.

These systems, which have glass-fused-to-steel construction inside and out, feature mechanical sweep-arm bottom unloaders, making possible completely automatic systems for storing and conveying bulk materials into process.

Detailed performance data and typical Permaglas mechanized bulk storage structure installations in various industries are shown and described in detail.

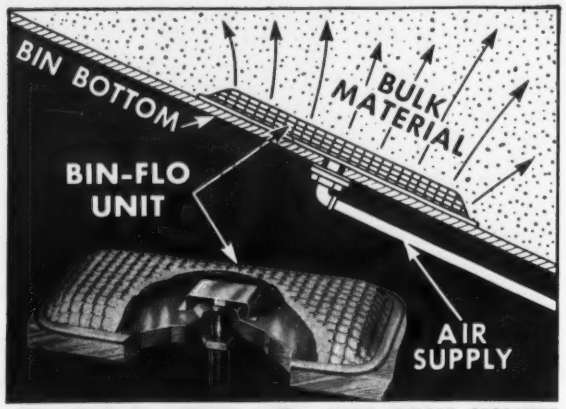
This includes schematic flow diagrams of systems for storing feed ingredients, starch, sugar, brewer's grain, flour, meat meal, fish meal, etc. Actual cost-savings realized in handling and storing of semi- and free-flowing bulk materials are given.

Bulletin also introduces a new line of glass-lined products for inplant storage of bulk materials into process.

7377 on Reader Service Slip.

4 phases of coordinated material handling

A coordinated materials handling system makes use of four phases of handling — movement of materials, accumulation, transfer and control — to their maximum effectiveness. It links these phases into one efficient flow system which incorporates all the applicable principles of



BIN-FLO **USES SMALL VOLUME OF AIR AT LOW PRESSURE**

KEEPS BULK MATERIALS MOVING

BIN-FLO units in bins, chutes, hoppers, etc., restore flow characteristics to dry, finely ground materials which tend to pack or bridge in storage. Types for all materials and conditions. No moving parts; simple installation; negligible operating cost; no maintenance cost.

BIN-DICATOR the original diaphragm-type bin level indicator. In successful use for over 20 years. **ROTO-BIN-DICATOR** new, motor-driven paddle type; excellent on bins under pressure or vacuum, and for general application. Also explosion-proof units, U.L. listed.

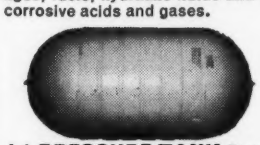
THE BIN-DICATOR CO.
13946-C Kercheval • Detroit 15, Mich.
Write for detailed literature or call
VAlley 2-6952

WE SELL DIRECT • PHONE ORDERS COLLECT

7378 on Reader Service Slip.

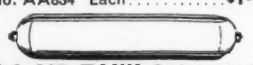
FLUID & GAS PRESSURE TANKS
STAINLESS & CARBON STEEL TANKS
(GOVERNMENT SURPLUS BARGAINS)

Steel tanks for the handling, storage and transportation of gases, beverages, fuels, hydraulic fluids and other liquids. Stainless steel tanks for corrosive acids and gases.



J-1 PRESSURE TANK Stainless steel, surplus aircraft oxygen tank. 48" long, 24" dia. Rated for 400 P.S.I. working pressure, 18,000 cu. in. vol., 77.9 gal. capacity. ¼" pipe thread fitting at each end. New condition. Shipping weight 247 lbs. F.O.B. Chicago.
No. AA832 ..... $99.50

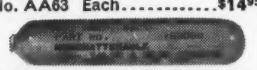
FREON TANK Capacity 22 oz. of Freon F22, 6 cc Methyl Alcohol. 18¼" long, 2" dia. ¾" pipe thread opening at one end. Equipped with brass valve. Shipping weight 3 lbs. F.O.B. Chicago. (Six for $8.00).
No. AA834 Each $1.50



D-2 AIR TANK Carbon steel. Capacity 500 cu. in. (approx. 2 gals.) 450 P.S.I. ½" pipe thread port at each end. 24" long, 6" dia. Postpaid. (Two for $8.50).
No. AA391 Each $4.95

G-1 TANK Stainless steel. Capacity 2100 cu. in. (9 gals.) 450 P.S.I. ¼" pipe thread port at each end. 24" long, 12" dia. Shipping weight 19 lbs. F.O.B. Chicago. (Two for $27.00.)
No. AA63 Each $14.95

CORNELIUS HIGH PRESSURE (1500-2000 P.S.I.) AIR COMPRESSOR Three cylinder, 3-stage compressor, complete with 27 volt, D.C. 20 amp. motor, with fan. Rated 1500 P.S.I. continuous duty, 2000 P.S.I. intermittent. Pressure switch in base. As released by Air Force, in used, serviceable condition. Covered by our 30 day GUARANTEE. 11½" long, 7" high, 9" wide. Shipping weight 12 lbs. F.O.B. Chicago. Limited quantity.
No. AA549 ..... $35.00



NON-SHATTERABLE CO_2 CYLINDER This type of pressure bottle was used by the Armed Forces for inflating life rafts. 18¼" long, 3¾" dia. Has ½" pipe thread opening at one end. Capacity 2.98 lbs. of CO_2—at 1800 P.S.I. Shipping weight 10 lbs. F.O.B. Chicago.
No. AA303 ..... $2.50

Write today for FREE CATALOG of other EQUIPMENT BARGAINS!

GROBAN SUPPLY COMPANY
1139 S. Wabash Ave., Dept. AA-1, Chicago 5, Ill., WEbster 9-3793

7379 on Reader Service Slip.

materials handling.

Some of these material handling principles and how they are coordinated are explained in a revised general catalog, issued by The Rapids-Standard Co., Inc.

Containing over 150 illustrations, 44-page Catalog GC-1 includes such new products as APC (Adjustable Pressure Conveyor) wheels and live rollers, and slotted-angle construction material.

Photographs and diagrams illustrate new techniques and applications of materials handling equipment in warehousing, manufacturing and other areas.

Other subjects covered in catalog include: gravity conveyors, powered conveyors, framing material and live storage racks, overhead conveyors, special conveyors, conveyor-system accessories, casters, wheels and hand trucks.

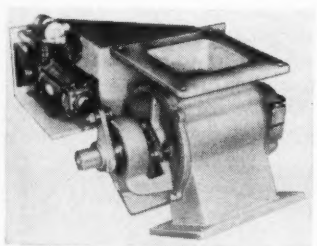
Catalog is indexed for easy reference.

7380 on Reader Service Slip.

Two-way, air-operated rotary diverter valve

A new line of heavy-duty, rotary diverter valves is now available for handling powders or granular products.

Units are designed to be air-operated from a remote control point. They provide a positive no dribble shut-off



Air-operated, two-way rotary diverter valves are available in cast iron or stainless steel construction

when diverting materials from one line to the other.

Supplier: Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

7381 on Reader Service Slip.

LINK-BELT S-815 flat-top chain with

Dovetail Design

assures smooth pickup, smooth ride for containers

Here's a simple, durable, moderately priced flat-top chain specially designed to treat containers gently.

One-piece steel links dovetail to form a level, continuous carrying surface. This design, together with beveled edges, assures smooth pickups and transfers . . . reduces danger of tipping stalled or slow-moving containers.

Dovetail design also assures long life for Link-Belt S-815 flat-top chain. Pulling load is absorbed by entire link during chain-sprocket contact. Results: wide load distribution, low unit bearing pressure on sprocket teeth, no load on pin during articulation.

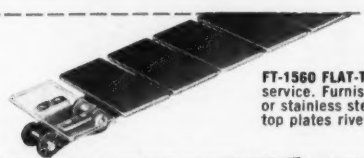
For complete details on S-815 and all other Link-Belt flat-top chains, contact your nearest Link-Belt office or authorized stock-carrying distributor. See CHAINS in the yellow pages. Or write for Catalog 1050.

LINK-BELT

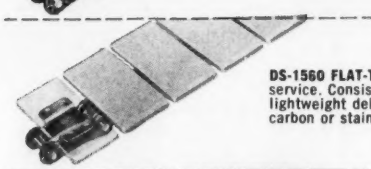
CHAINS & SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World. 15,416

OTHER LINK-BELT FLAT-TOP CHAINS

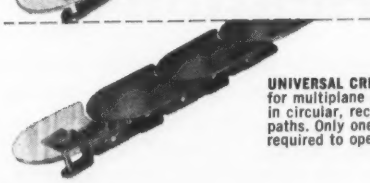


FT-1560 FLAT-TOP for straightline service. Furnished entirely of carbon or stainless steel, or with stainless steel top plates riveted to carbon steel chain.



DS-1560 FLAT-TOP for straightline service. Consists of smooth, resilient, lightweight delrin top plates joined to carbon or stainless steel roller chain.

CRESCENT FLAT-TOP designed for smooth travel over numerous horizontal paths. Ideal for use where material must be carried around corners or recirculated.



UNIVERSAL CRESCENT FLAT-TOP for multiplane operation. Can travel in circular, rectangular or irregular paths. Only one driving mechanism required to operate the entire system.

7382 on Reader Service Slip.

DURABILITY★EFFICIENCY★VERSATILITY

ARE COMBINED TO MAKE THE

MEYER *Continuous* BUCKET ELEVATOR

ADAPTABLE TO ANY CONDITION OR CAPACITY REQUIREMENT...

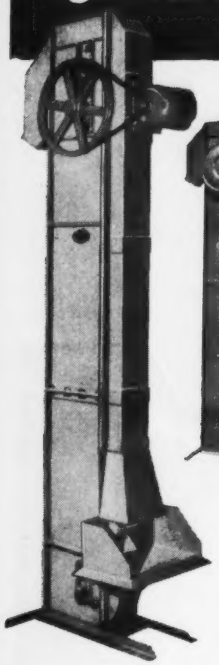


Fig. A

Fig. B

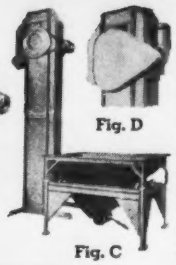


Fig. C

Fig. D

MEYER BUCKET ELEVATORS are furnished in low speed models, in any height or capacity, for gently handling bulk material without breaking or jamming. Intake design prevents material from falling into elevator boot, and positive discharge prevents inter-mixing when various products are alternately run in the same elevator. Built of heavy gauge steel with sealed, self-aligning bearings throughout for continuous heavy duty operation. They are available with Cast aluminum alloy, or fabricated stainless or mild steel buckets mounted on heavy duty roller chains.

AVAILABLE WITH HOLDING OR FEEDER-HOPPERS IN SIZE OR TYPE DESIRED

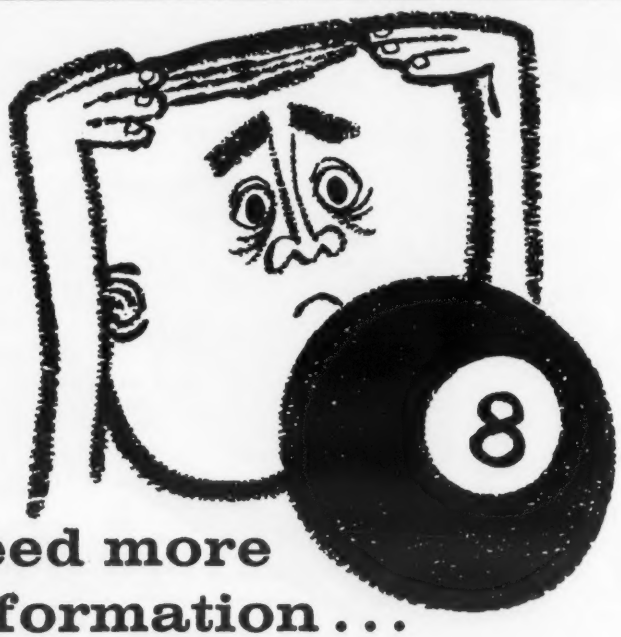
Fig. A. Standard Small Production Type Hopper. Fig. B. Large Holding Hopper. Fig. C. with Portable VIBRA-FLEX Feeder-Hopper. Also available with Gear Motor Drive as in Fig. D.

MEYER MACHINE COMPANY
3528 Fredericksburg Road
SAN ANTONIO 1, TEXAS

MANUFACTURERS OF
CONVEYING
ELEVATING
AND
PROCESSING
EQUIPMENT

Write for Bulletin 912

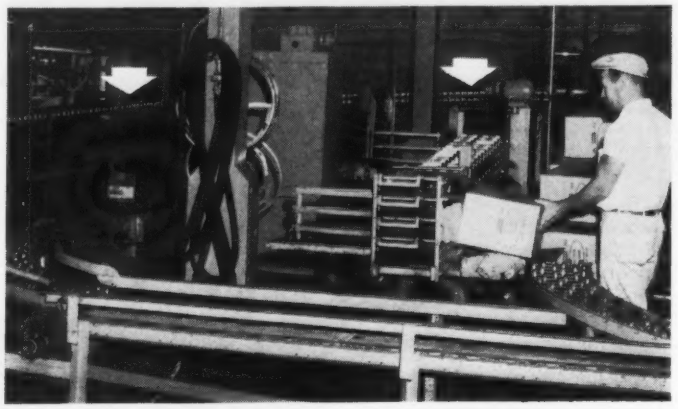
7383 on Reader Service Slip.



need more information...

Note there is a key number at the end of editorial articles or advertisements. To request more information write in the proper number on the convenient form on page 39. Send the form to us . . . we do the rest. Information comes direct to you. No obligation of course.

Ultra-fast can handling. Arrows indicate line of cans (background) halted as they are conveyed "in the flat" to labeler, before proceeding to case packer in foreground. If cans were moving, only a blur would appear



Conveying in the flat at 500 cans per min . . .

. . . practically eliminates product degradation in post-retort can handling

FRANK L. BONEM
Associate Editor

TENDER CANNED FOODS are moved in a "blur" of speed — yet without damage — immediately after retorting at the Fruitland, Md., plant of Dulany Foods, Inc.

Such rapid post-retort handling is possible because the cans are conveyed "in the flat" from retort to labeler.

When retorting is over, operator actuates a lever on retort unloader to mechanically raise each layer of cans to unloader height. As can bottoms line up with table of machine, a steel hoop (see lower photo) pulls them onto the unscrambling table.

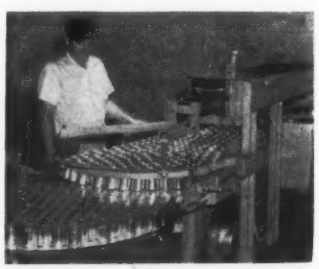
Retort basket unloader, made by Busse Bros., Randolph, Wis., feeds the cans — standing on their flat ends — into the conveyor.

Single-chain conveyor, made by Dulany personnel, handles cans at rate of 500 per min, moving them all the way to the labeler.

Cans are turned on their sides as they enter labeler, and are rolled for the short distance of 10 ft from labeler to case loader.

According to W. J. Hart, Jr., chief technologist for Dulany Foods, conveying in the flat — besides minimizing product degradation in post-retort handling — also is proving to be, from Dulany's standpoint, the finest system with respect to product recontamination.

There are no bumps, no



Unscrambler units transfer complete layers of cans from retort baskets swiftly, yet without tipping or rough handling

banging of seams and no spots where rough handling can recontaminate the already processed canned foods — most important when the cans are still in the "just processed" stage and seams have not had opportunity to become tightly sealed.

7384 on Reader Service Slip.

Compares propane and electric truck costs

A thorough study, comparing propane and electric truck costs, is provided in a 16-page booklet entitled "Industrial Truck Costs: A Practical Approach to Propane and Electrical Industrial Truck Cost Studies."

Booklet is available from the Exide Industrial Div., The Electric Storage Battery Company.

Opening pages show two calculation forms which may be used to make accurate studies in only a few minutes on different sizes of trucks and applications. One of the forms is completed to show sample of results.

Improvements in design and operations of electric trucks through the years are pointed out. For example, electric trucks have been equipped with batteries of increased electrical capacity per pound and per cubic foot, with chargers of more compact design, lower cost and generally improved characteristics.

Trucks themselves have improved travel speeds, improved controls, shorter turning radius to provide more maneuverable trucks and improved lifting speeds.

Numerous graphs, charts and diagrams throughout the booklet provide all of the cost factors associated with owning and operating propane and electric industrial trucks. Included is information on such factors as truck prices, power requirements, oil consumption, battery prices, truck depreciation costs, charger prices, cost of propane, cost of oil, maintenance time and parts cost, etc.

7385 on Reader Service Slip.

Read this . . . Order this . . . Install this . . .

Save up to ⅓ the cost of your next conveyor with Handidrive components

Why pay big premiums for unnecessary custom engineering? Order your next conveyor mail order style . . . right out of STANDARD CONVEYOR'S new *Handidrive* Handbook. Get fast delivery right off the shelf . . . save up to ⅓ the usual cost.

How? Using this valuable new Handbook, you can plan your own installation, order the components you need from factory stock, and then assemble them yourself with simple tools to save on erection costs. And, should you need help, our conveyor specialist in your city will be happy to give free advice on layout, ordering, prices and installation.

In-stock *Handidrive* components include gravity and power roller sections, belt sections, drive units, curves, supports, hangers, tapered sections, guardrails, feed sections, diverters —everything you normally need for an efficient, low-cost conveyor installation.

Moreover, all components are interchangeable to simplify future alteration of your *Handidrive* system to meet changing material handling requirements.

Check these Standard-ized Handidrive "right-off-the-shelf" benefits

- Lower initial cost . . . you buy only what you need!
- Inexpensive to alter or add to.
- Stock items cost us less to build . . . cost you less to buy!
- The most complete line of fully integrated units all from a single source.
- Ready to ship as fast as we can process your order!

Here's the Handbook *that tells you exactly what to do to cut costs with pre-engineered HANDIDRIVE conveyors. Send for your free personal copy now. Just fill in the coupon, attach to your letterhead and mail. Do it today!*

Standard Conveyor COMPANY

Sales and Service in Over 40 Cities
Look in your Yellow Pages under "CONVEYORS"

STANDARD CONVEYOR COMPANY
308-A Second St., North Saint Paul 9, Minn.

Please send me your new HANDIDRIVE Conveyor Handbook.

YOUR NAME_____

YOUR TITLE_____

7386 on Reader Service Slip.

KEEP BULK MATERIALS FLOWING FREELY

SYNTRON ELECTRIC VIBRATORS

ASSURE STEADY MATERIALS FLOW FROM BINS, HOPPERS, CHUTES

Syntron builds an Electromagnetic Bin Vibrator unit to meet almost every requirement. Prevents most types of bulk materials from arching or plugging in bins, hoppers, and chutes.

The Electromagnetic drive unit produces 3600 instantly controllable vibrations per minute, providing a steady materials flow to processing equipment.

Every Syntron Electromagnetic Bin Vibrator is rugged and durable. The absence of mechanical moving parts assures long, trouble-free service with very little maintenance.

Keep bulk materials flowing efficiently and economically.

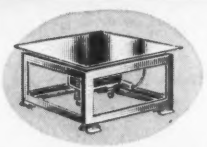
Write for a Syntron Catalog and the name of the representative nearest you.

61V1

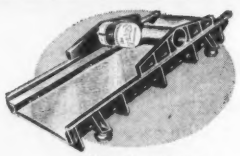
Syntron Vibrators being used to prevent bridging of very fine chemicals in hoppers

SYNTRON COMPANY
111 Lexington Avenue • Homer City, Pa.

Hopper Level Switches



Packer & Jolters



Vibrating Screens

7387 on Reader Service Slip.

NEW DEVELOPMENTS

design innovations, ingenious accessories improve performance, safety, ease of operation

Brand-new attachment . . .

Handles stacked bags without pallets

Stacked loads of bagged food products and non-food materials are handled unpalletized by new hydraulically actuated scoop-shaped arm attachment. A side-shifting mechanism, also incorporated, speeds pick-up and place-down of loads.

Attachment reportedly is especially useful in stacking rail car loads so as to facilitate unloading by consignee at destination, using only manual labor and hand-truck.

Scoop arms are 45 in. long, and can be spread 67 in. wide or clamped to 17 in. Maximum side-shift of clamps is 25 in. (12½ in. each side from centerline) when clamp opening is 42 in. Arm slides are fully bushed to insure long, trouble-free operation.

Attachment has a maximum capacity of 3500 lb, and is designed to fit all Clark fork trucks.

Supplier: Clark Equipment Company, Industrial Truck Division, 1921 Escote Street, Battle Creek, Michigan.

7388 on Reader Service Slip.

New one-ton-capacity models

New from ground up . . . Space-Saver 20 gas-powered lift truck marks Hyster's entrance into the cushion-tire, 2000-lb lift truck field. Narrow width, easy handling and short turn radius tailor it for congested warehouse operations.

Two features designed to keep unit operating with minimum trouble are an exclusive full-flow hydraulic oil filter and a dry-type engine air filter

IN LIFT TRUCKS

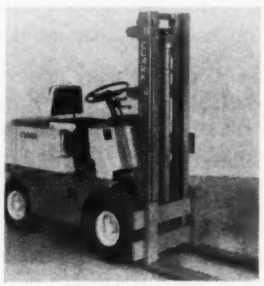
(that draws air directly from outside the truck).

Engine compartment is arranged so that all components requiring regular service are topside, within easy reach.

Truck is available with automatic power-shift transmission and Monotrol control system, or with manually operated, two-speed transmission.

Supplier: Hyster Co., P.O. Box 4318, Portland 8, Ore., and P.O. Box 847, Danville, Illinois.

7389 on Reader Service Slip.



For outside operation . . . over gravel and semi-paved surfaces, the CY 20, 2000-lb-capacity fork truck is powered by a 49-hp engine and is equipped with pneumatic 6.50 by 10 drive and steer tires on a 54-in. wheelbase. The unit will start and stop on a 37.5 per cent grade with full 2000-lb load.

Two transmissions are available: "Hydratork" power-shifted automatic transmission, and a standard transmission featuring special quick-change-design clutch.

Lift speed loaded is 74 fpm; empty, 91 fpm. Lift and tilt of upright is controlled from one lever mounted on right side of steering column — enabling operator to lift and tilt simultaneously.

Supplier: Clark Equipment Co., Industrial Truck Div., 1921 Escote St., Battle Creek, Mich.

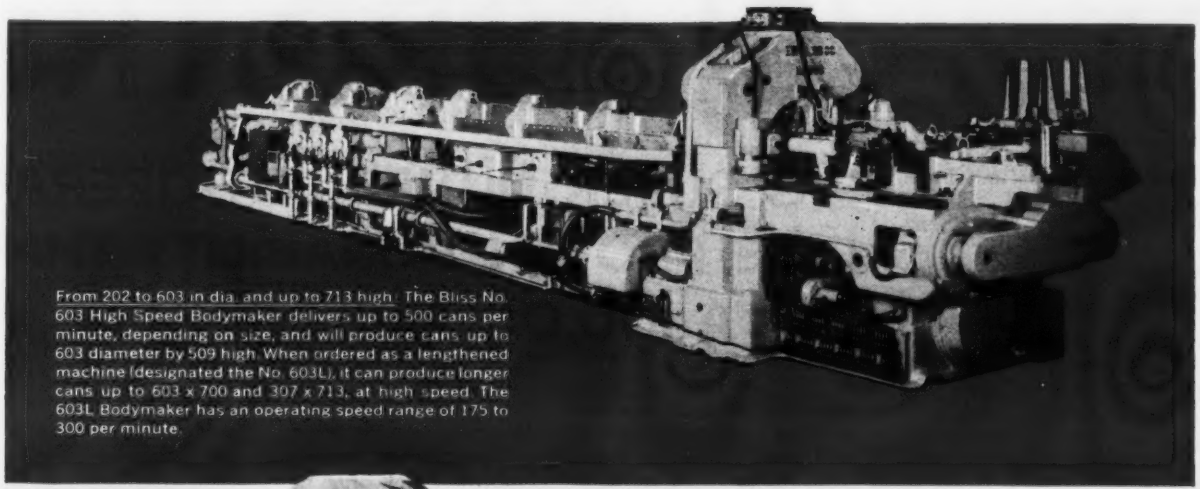
7390 on Reader Service Slip.

more on next page

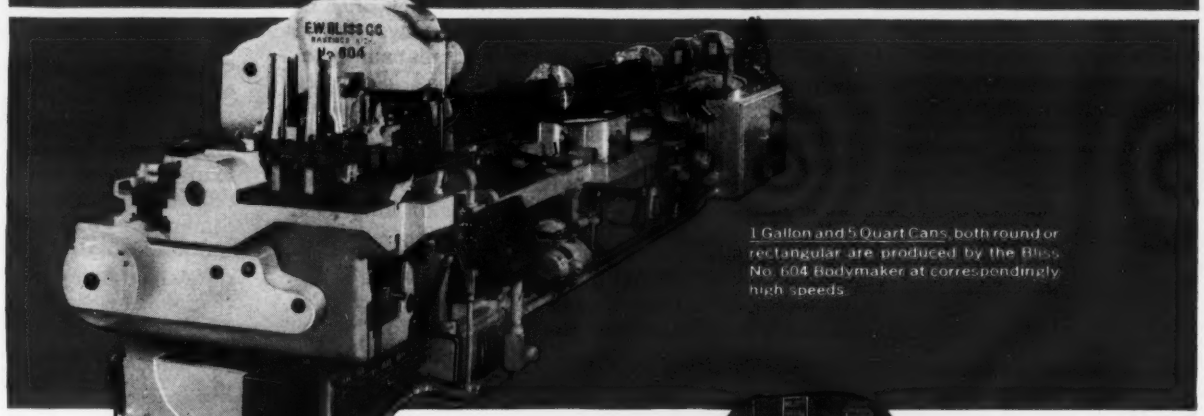
BODYMAKERS BY BLISS

for every body size and type

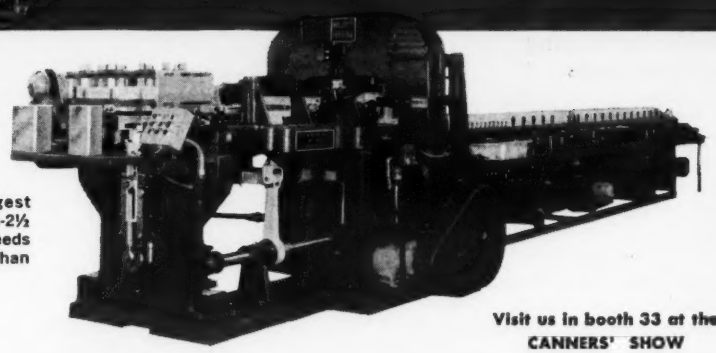
These Bliss bodymakers cover the entire range of can sizes and shapes, from the smallest standard sanitary can, up to 2½ gallon tins. For complete information about any of them, write us today.



From 202 to 603 in dia. and up to 713 high: The Bliss No. 603 High Speed Bodymaker delivers up to 500 cans per minute, depending on size, and will produce cans up to 603 diameter by 509 high. When ordered as a lengthened machine (designated the No. 603L), it can produce longer cans up to 603 x 700 and 307 x 713, at high speed. The 603L Bodymaker has an operating speed range of 175 to 300 per minute.



1 Gallon and 5 Quart Cans, both round or rectangular are produced by the Bliss No. 604 Bodymaker at correspondingly high speeds.



The New No. 014 Bodymaker: The largest in the Bliss line the No. 014 produces 2-to-2½ gallon rectangular gasoline cans at speeds up to 60 per minute, 50-to-60% faster than any existing equipment.

Visit us in booth 33 at the CANNERS' SHOW

BLISS SINCE 1857

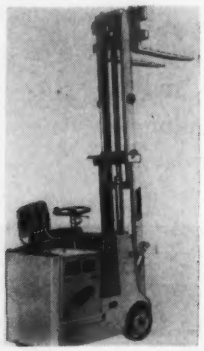
BLISS is more than a name—it's a guarantee

E. W. BLISS COMPANY · Hastings, Michigan

Foreign Subsidiaries: E. W. Bliss (Canada) Ltd., E. W. Bliss (England) Ltd.
E. W. Bliss Co. (Paris) France, E. W. Bliss-Henschel G.M.B.H., Düsseldorf, West Germany

PRESSES • ROLLING MILLS • ROLLS • DIE SETS • CONTAINER MACHINERY • CONTRACT MFG. • PUBLIC SAFETY

7391 on Reader Service Slip.



Fast tiering . . . of unit loads, under the most restricted warehousing conditions is purpose of new 2000-lb-capacity F-26TA-2 electric fork truck (another model of truck is available with 3000-lb capacity).

Truck features great maneuverability with short turn radius. Automotive-type controls and natural driving position increase operator efficiency.

Inner uprights and elevator carriage are roller-mounted to reduce wear and power loss. Other features — worm drive, twin tilt cylinders, hydraulic wheel brakes, safety controls, caster trail axle and center-sill frame.

Supplier: The Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio.

7392 on Reader Service Slip.

How to measure fitness of trailer for hauling perishable foods

A method for determining the suitability of a truck-trailer for hauling perishable foods is described in a new report issued by USDA.

The method is based upon the rate at which heat passes through the insulated body of the truck to its interior. If a trucker knows the heat transfer rate of his trailer, he can then select the correct size of cooling equipment to insure the protection of foods in transit to market.

Laboratory method of measuring the heat transfer rate of trailers used for fresh and frozen foods, was developed by researchers in the National

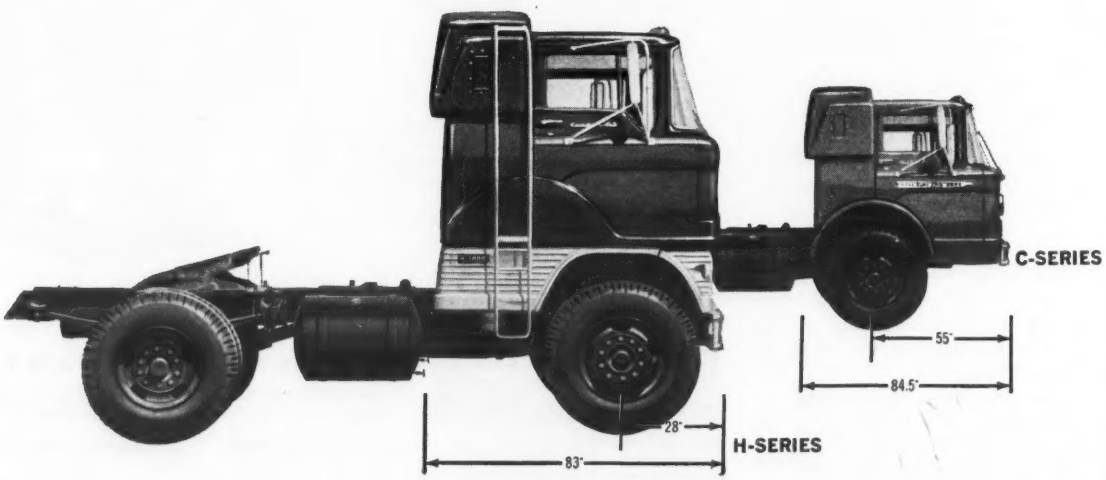
Save on the long hauls with new '61 FORD TRUCKS

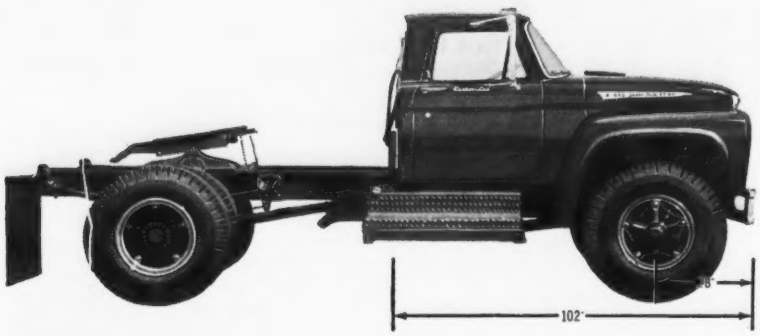
BIG SUPER DUTIES CUT OPERATING COSTS, GIVE PROVEN DURABILITY THAT'S BACKED BY A 100,000-MILE ENGINE WARRANTY

The 100,000-mile warranty on Super Duty V-8 gas engines is the most liberal in the industry. On 401-, 477- and 534-cu. in. V-8's, Ford Dealers will replace any major engine part (including block, heads, crankshaft, bearings, valves, pistons, rings) found to be defective in materials and workmanship providing trucks are used in normal service. Warranty covers full cost of replacement parts for 100,000 miles or 24 months, whichever occurs first . . . full labor costs for first year or 50,000 miles, sliding percentage scale thereafter. Never before have you had such protection . . . such evidence of long-term durability!

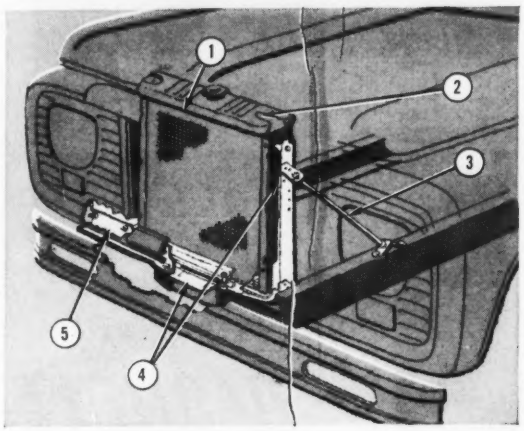
You save with greater gas economy! Certified tests prove the 1961 Ford Trucks with Super Duty V-8's give up to 20% better mileage. And Ford's new lightweight *extra-hi-tensile* single-channel frames (standard F- and H-Series) give you long-lived durability combined with a lightness of weight for added payloads. In addition, you get a wide choice of industry-accepted power train components in a "maintenance-engineered" chassis for easier service and lower running costs.

Save with the tractor best-suited to your job! Ford Super Duty V-8's are available in three basic tractor series to give you the particular type of cab and BBC dimension needed to comply with your legal load and road requirements. The F-Series models offer a conventional cab with 102″ BBC and 28″ BA dimensions for maximum loading in "bridge formula" states. The C-Series models with 82″ BBC dimension and set-back front axle let you haul top payloads where axle loads are the deciding factor. The new H-Series features 82″ BBC (83″ with sleeper cab) and 28″ BA dimensions in tilt-cab models for GCW's up to 76,800 pounds.





SAVE WITH NEW HEAVY-DUTY CONSTRUCTION THAT DOUBLES CAB, SHEET METAL AND RADIATOR LIFE



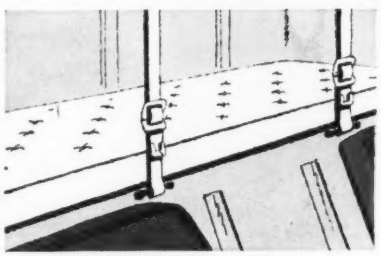
① **Ford's exclusive "lock-seam" radiator construction** doubles the solder area at key seams for greatly increased strength and longer radiator life.

② **42% heavier-gauge sheet metal** in fenders, hood, cab floor pan and toeboard gives greater strength and durability. Heavier-gauge metal on radiator tanks and header provides more strength, greater resistance to vibration, jolts and corrosion.

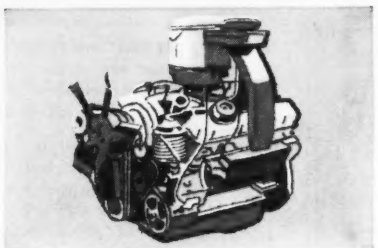
③ **Independent radiator mountings,** separate from front end sheet metal, mean that road shocks and shakes are not transmitted to the radiator through sheet metal. Tanks, tubes and connections last longer, require less maintenance.

④ **"Horse collar" mounting,** seated on resilient rubber at the center of frame cross member, soaks up any frame flexing . . . cuts wear and tear on entire cooling system.

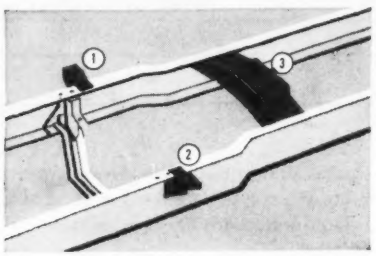
⑤ **Fender mountings,** independent of both cab and radiator, eliminate stress transfers for greatly increased fender life. And only 8 bolts per fender allow easy removal for rapid service accessibility to engine area.



Save with new sleeper cab that adds only 25 pounds to regular cab weight. This fiberglass compartment, for C- and H-Series models, meets all ICC requirements and adds only one inch to the standard BBC dimension of the H-Series models and 2½ inches for the C-Series.



Save with Super Duty V-8's, now in their fourth year of production. Displacements range from 401 to 534 cubic inches with horsepower from 206 to 266. Both the gasoline economy and the durability of these engines have been greatly improved for 1961.



Save with new 3-point cab mounting system for greater cab durability. Two outboard front mounts plus a centered "twin" rear mount provide a triangular system that holds the cab stationary while allowing the frame to move independently . . . reducing strain on the cab.

FORD TRUCKS COST LESS

YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" PROVES IT FOR SURE...

FORD DIVISION, Ford Motor Company

7393 on Reader Service Slip.

Bureau of Standards and USDA's Agricultural Marketing Service.

Equipment, facilities and funds for the project were contributed by the Agricultural Marketing Service, the National Bureau of Standards, the Quartermaster Research and Engineering Command, Department of the Army and the Truck-Trailer Manufacturers' Association.

The association coordinated the support of the American Trucking Associations and a number of manufacturers of refrigerating units and trailer components.

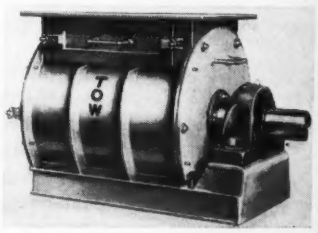
A free copy of the report, Marketing Research Report No. 433, entitled "A Rating Method for Refrigerated Trailer Bodies Hauling Perishable Foods," is available from the Office of Information, USDA, Washington 25, D.C.

Dry feeder designed for uniform flow of powder or granular materials

A series of pre-engineered dry feeders are available designed primarily for uniform flow of powdered or granular dry food products.

Feeders feature reinforced machined casings, corrosion resistant linings and a channel base that takes the motor load off the feeder casing.

Suitable for use as air locks on low pressure differential



Dry feeders are available jacketed for heating or cooling

applications, these feeders can be furnished with or without Teflon wiper blades — at the user's option.

Supplier: Tower Iron Works, 60 Borden St., Providence 5, Rhode Island.

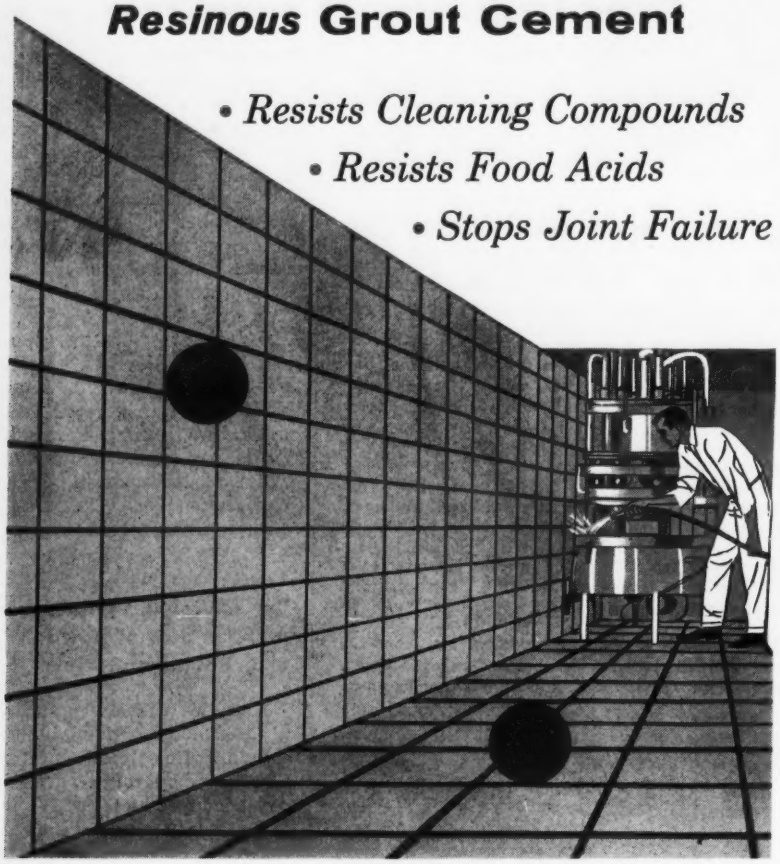
7394 on Reader Service Slip.

Ends your floor and wall tile problems...

Nukem Supertite

Resinous Grout Cement

- *Resists Cleaning Compounds*
- *Resists Food Acids*
- *Stops Joint Failure*



Supertite is a resinous grout cement and unlike ordinary cementitious material, is absolutely immune to the corrosive effects of food acids, sugars and syrups. It will not deteriorate with age, it eliminates joint failure in walls and floors.

Supertite Grout Cement gives your tile walls and floors *complete* resistance to attack by food acids, cleaning solutions, organic chemicals and water.

Supertite is a mortar type acid-alkali resistant grout cement that sets quickly and "welds" brick, tile and glass block together. It has great impact resistance and a high degree of flexibility...sets quickly and bonds permanently, yet is exceptionally easy to clean.

Supertite adds years of service to both new and old floors and eliminates contamination problems.

For information and illustrated technical data, write:

Amercoat® CORPORATION

Dept. WM, 4809 Firestone Blvd.
South Gate, California

921 Pitner Ave. Evanston, Ill.
360 Carnegie Ave. Kenilworth, N.J.
111 Colgate Buffalo, N.Y.
2404 Dennis St. Jacksonville, Fla.
6530 Supply Row Houston, Tex.

7395 on Reader Service Slip.

material handling

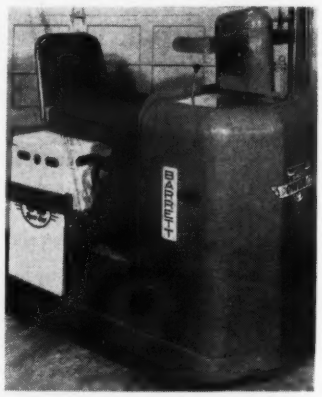
Fast in-plant hauls for trailer-train loads

Gentle start prevents fragile item damage

Features: Barrett DG tractor is designed to place minimum stress on its own working parts or the load it hauls.

Dual squeeze-type grip controls work together in controlling acceleration and braking. Thus, it is impossible to brake with one control while accelerating with the other.

New adjustable time-delay mechanism, which can be set slow or fast through all speeds forward and reverse, prevents jerking trailers from a standing start.



Operator sits on comfortable upholstered seat and steers with convenient handlebar

Description: Tractors have ultimate drawbar pull of 550 lb, rolling load capacity of 10,000 lb. The 24-v tractor has four speeds forward and reverse to 6.25 mph without load, and 3.25 mph with full rated load.

The 12-v tractor has two speeds forward and reverse. Speed without load is 3.2 mph, with full rated load, 1.6 mph.

Short turning radius, narrow width of 27½ in. and length of only 46¾ in. (exclusive of the jaw coupler) make for easy handling and maneuverability.

For space economy and best efficiency, gear drive is designed as a single package unit — with drive motor,

Look in the YELLOW PAGES

Call your nearest

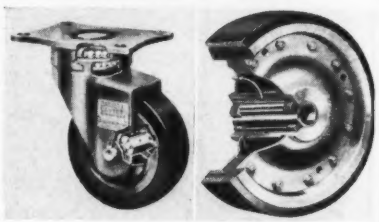
DARNELL DISTRIBUTOR

ASK FOR THIS NEW FREE HANDBOOK GIVES THE FACTS

about

DARNELL

CASTERS & WHEELS



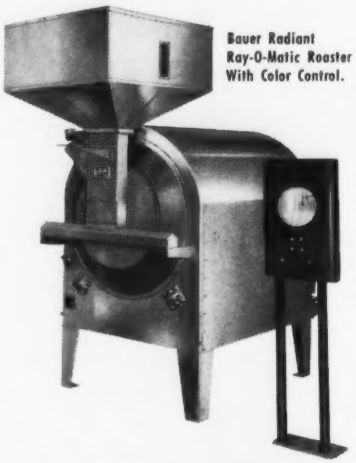
Featuring Darnelloprene treads - a soft, resilient Neoprene rubber compound that has superior qualities in resistance to oils, waxes, most chemicals and oxidation - these casters offer ease of movement, quietness and protection for floors.

DARNELL CORPORATION, LTD.

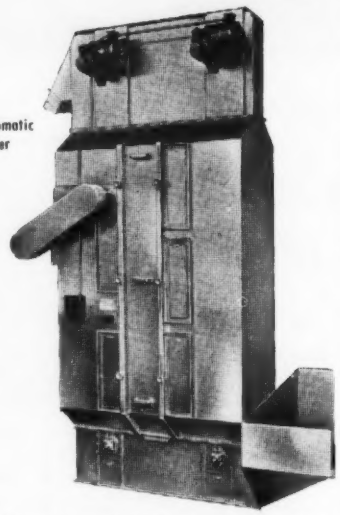
DOWNEY (Los Angeles County) CALIF.
37-28 SIXTY-FIRST, WOODSIDE 77, L.I., N.Y.
36 NORTH CLINTON ST., CHICAGO 6, ILL.
1000 PEACHTREE N. E., ATLANTA, GA.

7396 on Reader Service Slip.

Improve Nut Roasting and Cooling at Higher Capacity AUTOMATICALLY



Bauer Radiant Ray-O-Matic Roaster With Color Control.



Automatic Cooler

This Bauer equipment handles one ton per hour, automatically and profitably. It provides such important advantages as:

- Cleaner roast . . . less carbon
- Less shrinkage
- Less gas consumption
- Lower labor costs
- More efficient . . . doubles plant capacity with no increase in floor space
- Improves working and safety conditions

Ask for descriptive literature

To Upgrade Production, Call Bauer

THE BAUER BROS. CO.

Springfield, Ohio

In Canada:
The Bauer Bros. Co. (Canada) Ltd.,
Brantford, Ontario

7397 on Reader Service Slip.

transmission, drive wheel and brake mounted in a balanced vertical column directly below the steering handle.

A high torque, four-pole motor delivers ample power for all hauling jobs.

Supplier: Barrett-Cravens Co., 628 Dundee Rd., Northbrook, Ill.

7398 on Reader Service Slip.

Fundamentals of pallet handling

Pocket-size, 16-page booklet, A B C of Pallet Handling, illustrates and describes different types of pallets and explains their uses. Available from The Raymond Corporation, literature lists advantages of wood and metal pallets and explains pallet specifications.

Booklet also describes how to estimate pallet requirements by floor-area, weight and unit methods. In addition, it contains instructions for loading pallets, and diagrams for standard loading patterns.

Suggestions for safe pallet operations are presented.

7399 on Reader Service Slip.

Proper truck selection to enhance cost position

Five ways that a mis-applied truck can damage cost position within your plant are featured in an 8-page, 2-color, fold-out brochure, issued by Automatic Transportation Company.

Entitled "Proper Truck Selection," the brochure lists case histories to show how the wrong truck, installed in different situations, can cause unproductive output and increase costs.

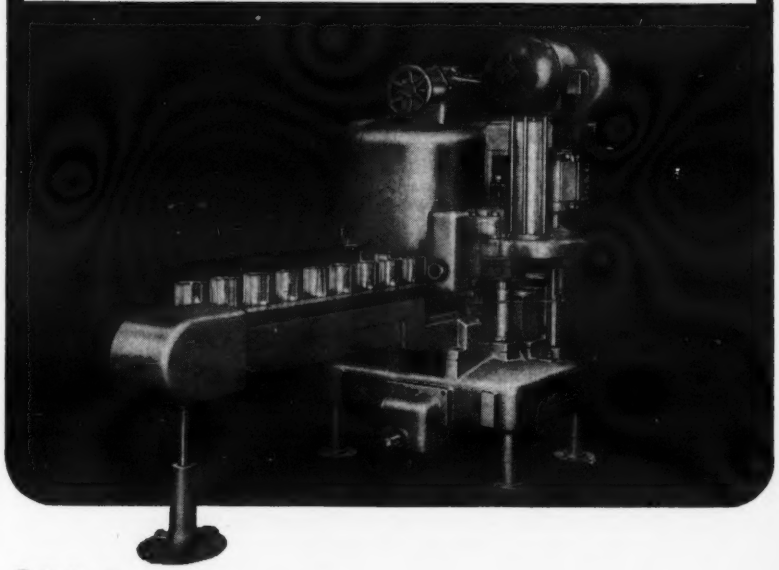
The correct solution to the problem, plus five pages of application photographs illustrate the importance of truck selection. Also listed are seven tips for choosing the right truck to fit each application.

The brochure is fifth in a series of technical brochures designed to give materials handling engineers information which they can retain as a ready-reference.

7400 on Reader Service Slip.

Swing To...

ANGELUS
CAN CLOSING MACHINES



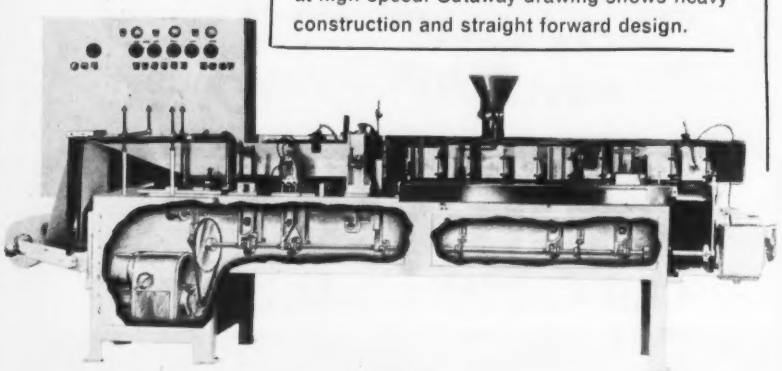
Welcome *to Angelus Booth No. 5*
Annual Canning Machinery & Suppliers Association Convention
Chicago—January 22-25, 1961

We extend a cordial invitation to you to visit the Angelus exhibit, and to see through demonstration and personal inspection the features—dependability of operation, economy and simplicity of maintenance, and low investment costs—that influence canners and can makers the world over to swing to Angelus Can Closing Machines.

ANGELUS
Sanitary Can Machine Company
Cable Address "Angelusco" Western Union Code
4900 Pacific Boulevard • Los Angeles 58, Calif.

7401 on Reader Service Slip.

● FUNCTION: Forms, fills and seals flexible pouches automatically. Handles most supported thermo-sealing packaging materials at high speed. Cutaway drawing shows heavy construction and straight forward design.



BARTELT

the "rugged individuals" of flexible packaging

Each Bartelt unit is a true individual . . . custom designed for the particular job. Each is ruggedly built to machine tool standards for unmatched dependability. In flexible packaging there is no standard machine . . . no stock model . . . that will do the job like a Bartelt "rugged individual."

Speeds: Maximum cycle rate 150 cycles per minute. Package production rates up to 400 per minute on multiple compartment jobs depending on product fill quantity and characteristics, package size and form, and type of index drive system provided.

Versatility: Fin seal pouches, with or without bottom seal, gusset bottom pouches and multiple compartment pouches through the use of interchangeable tooling. Pouches from 1⅝″ by 2″ to 7¾″ by 9½″. Gussets to 2″.

Filling: The Bartelt Filler will handle liquids, pastes, powders, viscous materials and granular solids by the application of interchangeable tooling. Other fillers, such as dial feeders, vibratory units, conveyors and cup volumetric fillers are available for special needs.

Options: Tear string applicators, true saddle label applicators, punch and die sets, code daters, nitrogen packaging and many more.

Write for NEW Catalog, Today!

BARTELT ENGINEERING COMPANY, INC.

1900 Harrison Ave., Rockford, Ill.
New York Office: 370 Lexington Ave., N.Y.C.

7402 on Reader Service Slip.

Improper fill (exaggerated for photo purposes) permits photoelectric beam, represented by dashed line, to pass uninterrupted through jug's upper portion, activating reject plunger (large arrow) which pushes erring jug onto conveyor-belt "siding" in foreground

How photoelectric monitor with 'memory'

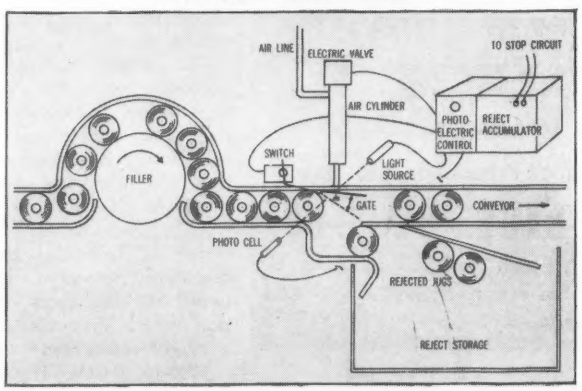
Licks Pepsi's automatic syrup-filling problems

Detects and rejects improper fills; halts line automatically after four successive rejects

Problem: At Pepsi-Cola Company's main syrup-filling plant on Long Island, the very factors assuring high-speed, sanitary production created difficulties in locating and rejecting improperly filled bottles.

At the speed (50-100 per min) at which the conveyor belt propels the gallon jugs away from the filler and over

Microswitch which activates light source is positioned so that each jug trips it at moment jug is centered between light source and photo cell — insuring a true "reading" of correct fill height or underfill. If an underfill, microswitch immediately activates pneumatic plunger which closes off straight line of travel and directs reject jug to storage "siding"



to the automatic capper, it is impossible for the human eye to detect a slight lowering of the syrup level below specification.

Solution-Results: A system of photoelectronic selection-rejection — installed at point of conveyor at which the syrup-filled bottles leave the filler — detects and rejects improperly filled jugs.

System also halts the production line after four successive rejects, to permit fill-level adjustment.

As applied at Pepsi, the detection-rejection phase of system is based on theory that a beam of light aimed at a photoelectric cell creates an electric current.

This current is interrupted when a fully filled bottle of syrup passes through the beam

Close-up shows properly filled jug blocking beam centered on base of jug neck by light source at right. In left foreground is photosensitive cell

— the opacity of the syrup as well as its liquid nature (which acts as a dispersing agent) blocking passage of the beam.

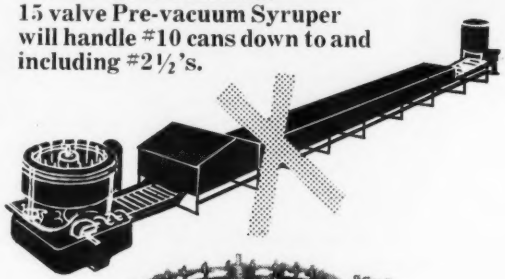
Should syrup level be below a predetermined height, the electric current generated by the uninterrupted light beam activates a pneumatically operated plunger. This pushes the improperly filled bottles off the main conveyor onto a stationary platform "siding."

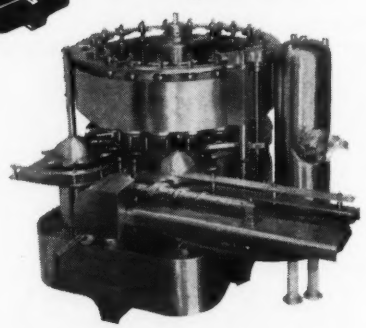
Several complications had to be solved in translating the above theory into practice on the Pepsi filling line.

For example, since the light beam continuously strikes the photosensitive cell when no bottles are present, what is to inhibit the plunger from con-

ATLAS★PACIFIC UNIVERSAL* PRE-VACUUM SYRUPER

Atlas-Pacific Universal
15 valve Pre-vacuum Syruper
will handle #10 cans down to and including #2½'s.





Atlas-Pacific Universal
20 valve Pre-Vacuum Syruper
will handle #10 cans, 46 ounce down to 8 ounce.

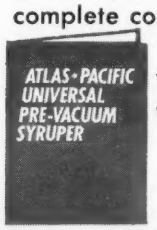
ahead of the times in design, construction and operation

Vacuum filling assures accurate filling, immediate penetration and uniform head space by eliminating air pockets. You get a better product, faster, at less cost, in less space.

At no time during the filling cycle is the product subject to atmosphere.

From the vacuum filler, the container moves directly to the closing machine, eliminating a costly exhaust box and possible over-cooked or mushy product at the top of the container.

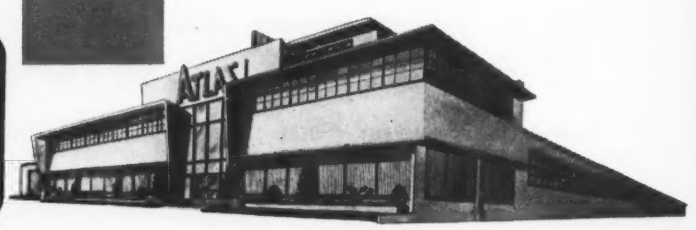
If you are even mildly considering a syruper or briner, get a copy of our new pre-vacuum brochure that gives complete construction and operational features.



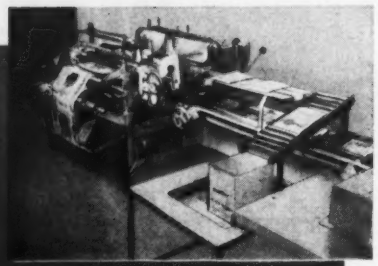
write today!

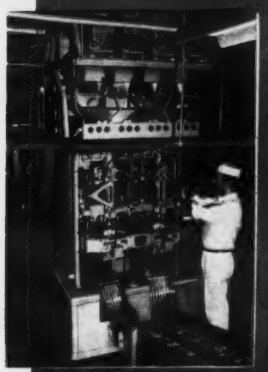
* Formerly manufactured by Universal Filler Company

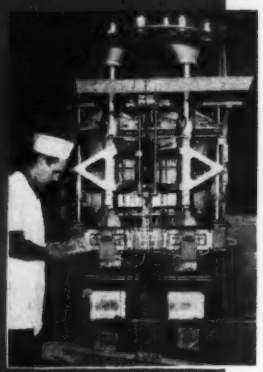
ATLAS-PACIFIC ENGINEERING COMPANY, INC.
1321 67th Street • Emeryville, Calif.



7403 on Reader Service Slip.







HAYSSEN HAS THE ANSWER TO YOUR PACKAGING PROBLEM!

Whatever your product, whatever your packaging problem, there's surely a machine in the long and versatile Hayssen line to satisfy your need. If not, we'll build one that will; and, we'll save you money, too!

Whether you require wrapping, bundling, banding, bagging or flexible packaging, Hayssen machines will do it better, run longer with less maintenance, are more versatile and efficient. They're *First* in *Automatic Packaging.*

Let our experienced packaging engineers help you with your packaging problems. Contact us TODAY!

HAYSSEN

MANUFACTURING COMPANY • DEPT. FP-110 • SHEBOYGAN, WISCONSIN

Offices in principal cities. Check your phone directory.

Atlanta • Boston • Chicago • Columbus • Dallas • Denver • Detroit • Evansville, Ind. • Jackson, Miss. • Kansas City Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto • Vancouver

7404 on Reader Service Slip.

tinuous activation during this period?

Another point — might not the light beam strike the highly refractive periphery of the gallon jug itself in such a way as to be blocked? How then can the instrument determine if blocking occurs due to height of syrup in the bottle, or is result of the angle at which the light beam strikes the bottle?

Both difficulties were resolved by introducing a microswitch which activates the pneumatic plunger only when bottle is dead center.

Thus, the light beam will set the entire reject operation in motion only when it passes through the exact center of an improperly filled bottle, and not through peripheral regions of properly filled jugs.

Photoelectric monitoring and memory system was designed, manufactured and installed by Standard Instrument Corp., 659 Broadway, New York 12, N.Y.

7405 on Reader Service

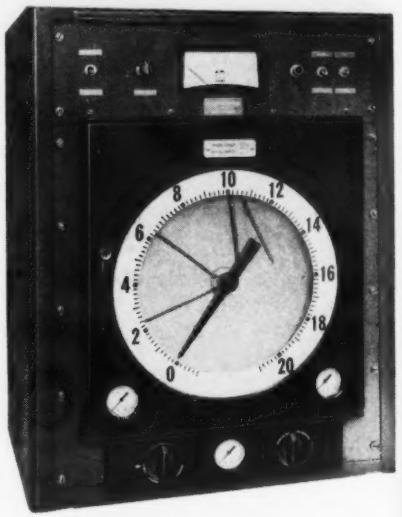
For activation at the right moment, the microswitch is attached to a "gate" which must be pushed open by the conveyorized jug as it leaves the filler. This action automatically establishes correct position of jug for level-gauging.

Signal to halt production and permit necessary adjustments to be made in fill level — the second phase of the over-all problem — is accomplished through inclusion of a memory circuit which notes electronically just how many bottles pass through the beam of light and become rejects.

Whenever four consecutive improperly filled jugs are detected and rejected, an adder system opens the circuit to the main-line switch — thereby halting the conveyor belt as well as the filler operation itself.

Should only three consecutive improperly filled jugs come through — followed by a full jug — then the memory system resets itself and operates again only after a new sequence of four consecutive underfills. END

DO YOU USE CARBON DIOXIDE ATMOSPHERES?



from HUMANE SLAUGHTERING to FRUIT STORAGE . . .

GAS MONITORS TO CHECK CO_2 ATMOSPHERE CONTENT

Simple meter indication, recorder read-out or continuous control of concentrations with automatic valving and external alarms. Precision units to control within 1%. Spot checks or 24-hour scanning of small or large areas. Single or multiple sample pick up heads.

Write for full technical information on our complete line of Therma Bridge gas analyzers using thermal, conductivity, catalytic combustion, paramagnetic and electrolytic conductivity sensing detectors.

Industrial Instruments Engineering Corp.

89 Commerce Road, Cedar Grove, Essex County, N.J.

7406 on Reader Service Slip.

It's the bananas!

Package produce at origin

- **Cuts shipping weight**
- **Cuts warehouse space**
- **Higher-quality product**

Plantation packing of bananas in corrugated boxes — successfully introduced by Standard Fruit and Steamship Company of New Orleans 20 yr after the company's first such attempts — has opened an entirely new era in growing, processing, packaging and marketing.

Until now, bananas have entered this country "on the stem," accompanied by hazards both to product quality and appearance at point-of-sale, and to middlemen's pocketbooks. Not least among expense items, has been a great deal of high-cost product processing at point-of-sale.

Cabana bananas — with point-of-origin processing — arrive at point-of-sale as uniformly ripe, good-looking and top-quality merchandise.

All the banana wholesaler needs in the way of facilities are transportation and mechanical handling equipment, together with adequate ripening space. Eliminated are 17 of 21 "traditional" warehouse processing operations, with their attendant space and labor requirements.

Three Key factors are involved in the new processing-merchandising development:

1) a hardy, disease-resistant banana variety — the "Cavendish" — which also has maximum taste appeal;

2) an ingenious plantation-processing procedure which hydro-cools the fruit and cuts shipping weight one-fourth;

3) a lightweight, highly efficient corrugated shipping container which withstands transit and storage abuse and protects the easily bruised Cavendish bananas against handling damage.

New system provides a standard product-package,

EXTENSIBLE CLUPAK® PAPER*

MULTIWALL BAGS OUT-PERFORM CONVENTIONAL KRAFT IN THE 3 TOUGHEST TESTS IN PACKAGING TODAY!

1

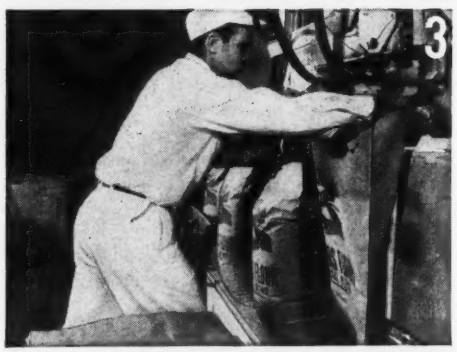
In Handling And In Transit!

Multiwall and baler bags made of new CLUPAK extensible paper withstand the strain and impact that cause conventional bags to rip, split or tear. This increased toughness allows multiwall and baler bag users to increase package strength yet decrease the number of plys with resulting economies. The next time you order, say CLUPAK before you say paper and see how it out-performs your present packaging material.

2

In The Warehouse!

Stack them high! Multiwalls and baler bags made of CLUPAK extensible paper hold greater loads, take greater strains, stack compactly and safely even with lower basis weight paper. The stretch and "give" built into CLUPAK extensible paper withstands punishment that often rips, splits and tears conventional kraft. Bags with the trademark CLUPAK warehouse faster—without "kid glove" treatment.



3

On The Filling Line!

Here, where multiwalls get their first and often most rigorous test, particularly on high speed filling and packaging equipment, CLUPAK extensible paper multiwalls are unexcelled! Their high energy absorption reduces breakage, helps maintain uninterrupted production schedules, cuts product waste and repackaging costs. Plan a trial shipment of multiwalls made of CLUPAK extensible paper!

Prior to CLUPAK extensible paper, there were no controlled standards of toughness in the paper industry. Clupak, Inc., is proud to have established these standards and permits the use of its trademark only on paper which meets these rigid toughness requirements.

EXTENSIBLE CLUPAK® PAPER

Ask your salesman about this revolutionary new material... prove to yourself that multiwall bags made of CLUPAK extensible paper give you...

GREATER STRENGTH WITH LOWER TOTAL BASIS WEIGHT

*Clupak, Inc.'s trademark for extensible paper manufactured under its authority and satisfying its specifications. Clupak, Inc., 530 5th Ave., N. Y. 36, N. Y.

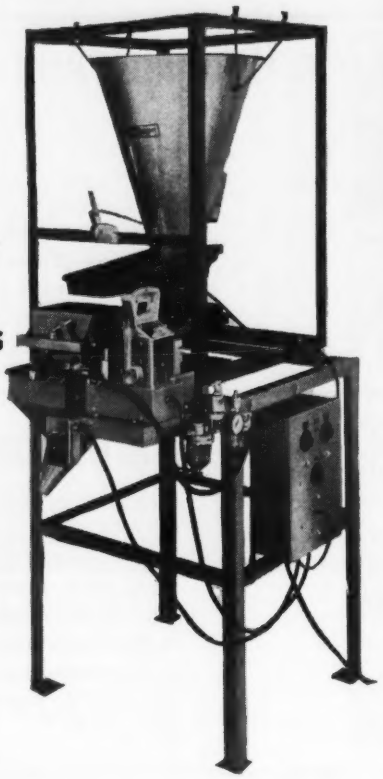
7407 on Reader Service Slip.

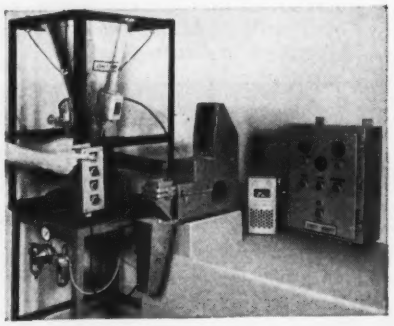
EXACT WEIGHT® Automatic Net Weighing Machines

FOR PACKAGING, BAGGING, BATCHING, COMPOUNDING

Featuring

Over-under indicator for constant visual check on weighments



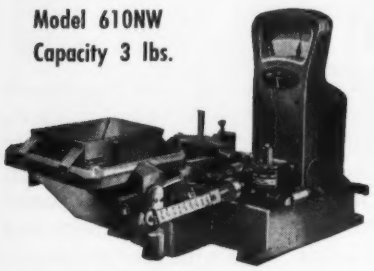


PRECISION AUTOMATIC MODEL 4601NW

The machine above is designed for weighing dry, free-flowing materials with accuracies of 1/10 gram on quantities below 10 grams and one percent accuracy on quantities of 10 grams and above. Combines a high-accuracy Shadograph Scale, air-operated dump mechanism, hoppers, vibratory feeders and photoelectric controls. Precision models with capacities from 50 grams to 500 grams. Write for Bulletin 3363.

Model 620NW
Capacity 10 lbs.

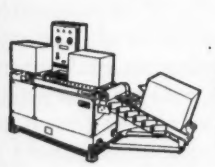
Model 610NW
Capacity 3 lbs.



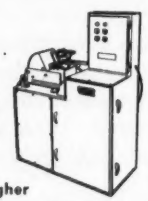
Net Weigher can be supplied without the feeder machine, support frame and discharge chute. The unit may be adaptable to your specific operation.

OTHER EXACT WEIGHT EQUIPMENT

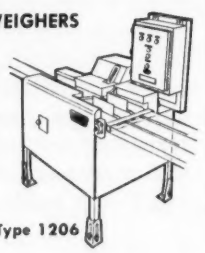
SELECTROL® AUTOMATIC CHECKWEIGHERS



Case and Bag Checkweigher Type 1250



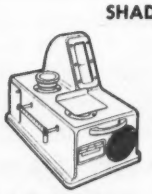
Type 145



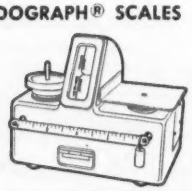
Type 1206

SHADOGRAPH® SCALES

END TOWER SCALES



4100 Series



4200 Series

Exact Weight SCALES

High speed, smooth operation and accurate control are among the many advantages offered by Exact Weight Automatic Net Weighing Machines.

Accuracy is assured by the 1:1 ratio lever-design precision industrial scale incorporated in each machine. A special feature is the over-under indicator dial that enables the operator to observe accuracy of each weighment. Visual indication eliminates the need for checkweighing — stops overweights. Machines are available in capacities from 1 gram to 300 pounds, either fully-automatic or semi-automatic models.

Exact Weight offers counsel for weighing problems based on 45 years of experience in industrial scales for all types of applications. Our recommendations will be tailored to your specific needs . . . and at no obligation. Write for Form 3311.

THE EXACT WEIGHT SCALE CO.

909 W. FIFTH AVE., COLUMBUS 8, OHIO
In Canada: 5 Six Points Road, Toronto 18, Ont.

Sales and Service Coast to Coast

Find us in your local 'Yellow Pages'

7408 on Reader Service Slip.

comprising a net 40 lb of completely saleable merchandise, with no wastage, delivered to point-of-sale for price-marking and display set-up.

Current deliveries of Cabana bananas to the U.S. are

Disposable shipper as it appears with top flaps removed, ready for display set-up

10,000 40-lb boxes weekly. Standard Steamship believes that sooner or later all bananas will be marketed in accord with this new system (the industry's biggest marketer has just announced a program.

Supplier: Lightweight corrugated shipper by Continental Can Co., Fibre Drum and Corrugated Box Div., 100 E. 42nd St., New York 17, N.Y.

7409 on Reader Service Slip.

Polypropylene packaging material USDA-approved

Polypropylene "Pro-fax," manufactured by Hercules Powder Company, has been granted approval by the Meat Inspection Division of the USDA for use with meat and meat products.

A letter from the USDA to Hercules, dated August 18, 1960, states in part, "Pro-fax 6420 (for film) and Pro-fax 6513 (for injection molding) are acceptable for use in involving direct contact with meat and meat food products."

Approval for use under the terms of the Food Additives Amendment was given by FDA some months ago.

Further information on "Pro-fax" may be obtained from Hercules Powder Co., Hercules Tower, 910 Market St., Wilmington 99, Del.

7410 on Reader Service Slip.

plants, companies, personalities,

Gulf American Corporation

is the new company formed to handle all sales, research and product development for all banana products manufactured by Pan-Am Foods, Inc., Brownsville, Texas; Gulf Southern Corp., Tampa, Fla.; and Standard Fruit & Steamship Co., New Orleans. Sales office, research facilities and test kitchens will be located at 901-945 Twiggs St., Tampa, Fla.

Trainin Egg Products Co.

Kansas City, Mo., a subsidiary of United States Cold Storage Corp., has named Dr. O. J. Kahlenberg technical director and director of sales. An outstanding authority on eggs and egg products, Dr. Kahlenberg most recently was professor of poultry husbandry at Missouri University.

Birds Eye Division

of General Foods Corp. announces appointment of Murray L. Rollins as process engineer at its Albion, N.Y., baby foods plant. He will be responsible for plant developments and improvements in manufacturing and processing procedures.

National Dairy Products Corp.

is seeking to acquire majority stock interest in Dominion Dairies Ltd., Montreal. Latter company serves Montreal, Toronto and numerous other Canadian cities.

General Foods

has promoted W. H. Enzie to the newly created position of director, corporate packaging development. He formerly had headed this area for the firm's Birds Eye division.

For more information on product at right, circle 7411 see information request blank opposite last page.

BETTER BOXES FOR SCOTCH-PLAID BUDGETS

With costs becoming increasingly important, most everyone is on a scotch-plaid budget. Dependable delivery; reduction of damage claims through properly designed containers; more efficient use of corrugated, without sacrificing strength; transportation costs; and nearness of supplier's plants are factors which influence the worth of corrugated containers. Consider all the factors, then consider Hoerner. Frugal Scotsmen from Timbuktu to Tipperary swear by us, And we're a long way from Tipperary.

HOERNER BOXES, INC.

CORRUGATED PACKAGING SPECIALISTS FOR MID-AMERICA

GENERAL OFFICES: 600 Morgan Street, Keokuk, Iowa • PLANTS: Fort Smith and Little Rock, Ark.; Des Moines, Keokuk and Ottumwa, Iowa; Danville, Ill.; Minneapolis, Minn.; Tupelo, Miss.; Springfield, Mo.; Sand Springs, Okla.; Sioux Falls, South Dakota; Fort Worth and Mission, Texas • ASSOCIATE: Cajas y Empaques Impermeables, S.A., Mexico City D.F., Mexico

Highly Intimate Blends in 1 to 2 Minutes

Blends while discharging; No segregation or flotation

Sturtevant Rotary Blenders start 4-way blending while charging, continue it during discharge, thus producing highly intimate, even blends of dry and semi-dry materials – within 3 to 5 minutes of start of charging.

Six *complete* blending cycles per hour are common. And Sturtevant's special action produces no particle reduction, cleavage or attritional heat – is highly effective yet gentle and safe even with explosives.

Receiving

Scoops cascade material as drum rotates. Movement forces material from both ends to middle. Thus blending is 4-way right from start of charging.

Discharging

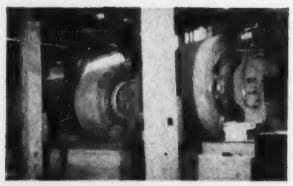
Single gate controls charge, discharge. Blending continues throughout discharge phase. Result is no segregation or flotation — highly intimate, even blends.

Self-cleaning, dust-sealed drum; one-man accessibility

Operation of Sturtevant Blenders is self-cleaning – drum interiors are completely dust-sealed. For inspection of all models, one man simply loosens a few lugs to remove manhole cover – quickly and easily.

Nine standard models with capacities to 900 cu. ft.

10 cu. ft. Sturtevant Blender at U.S. Steel Corp.'s new Applied Research Laboratory (Raw Materials Division) in Monroeville, Pa. This unit handles batches up to 500 lbs. — is ideal for pilot work and small runs.



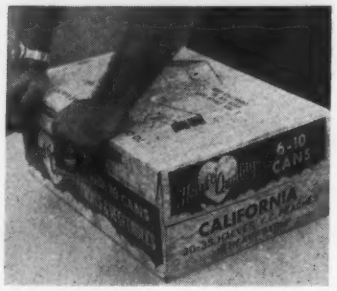
Automatically controlled, three 50 cu. ft. Sturtevants blend chocolate powder and other ingredients for Hershey Chocolate Corp. Operating in a group, each Blender can process more than a ton per batch. Quick accessibility and self-cleaning features keep maintenance to one hour per week.

Fully or semi-automatic, or manually controlled operation

Constructed of carbon steel, stainless steel or Monel metal, Sturtevant Rotary Blenders are engineered to fit each customer's needs – can be supplied with injector sprays and any desired control system.

For more on Sturtevant Blenders, request Bulletin No. 080B. (Bulletins also available on Mixers, Air Separators, Micronizers, Crushers and Grinders.) Write today. STURTEVANT MILL CO., 122 Clayton St., Boston, Mass.

7412 on Reader Service Slip.



Attractive white case is printed in two colors on five sides. Item markings are not destroyed after opening

Case opens cleanly at top with one motion, recloses for neater storage, stacks well even when partially unloaded

End-load savings — plus top-open convenience

Versatile shipping case has low-cost easy-open feature

JOHN H. ROBBINS,
Director of Packaging
Fair View Packing Co.
KARL ROBE,
Associate Editor

Problem: End-loading cases offer big savings potentials to packers of single-layer items — particularly No. 10, 46-oz and similar sizes which are cased in long and relatively flat cases.

By placing flaps in the ends of cases where area is smaller, up to 30 per cent less fiber can be used, depending on configuration of case.

For No. 10 cans packed six to a case, the saving amounts to almost $14 per 1000 cases. Consequently, Fair View Packing Co., Hollister, Calif., have been packing in this type case for their trade, which is predominately institutional.

Conventionally, cases are opened by user with a knife. Some customers desire a quick-open feature which can be accomplished without tools. Tear-strips added five to seven dollars cost per case, cancelling much of the savings of the end-loader. Besides, case could no longer be used to store unused cans conveniently.

Solution: Fair View now is able to offer its customers a top-opening case which is easily opened by hand, without use of tools.

New case has a built-in "lid", with front flap glued to outside of case (see photos). This flap is attached by a breakaway glue, applied so that bottom edge can be grasped as shown.

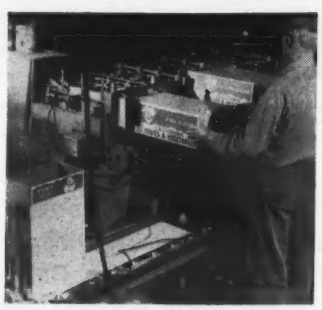
Score lines on flap and across top tear apart when case is opened by pulling flap upward, to form a hinged cover which may then be reclosed if desired.

Case is filled and sealed on same end-loading equipment as used on Fair View's private label cases. No machine adjustment is needed to run the top-opening cases.

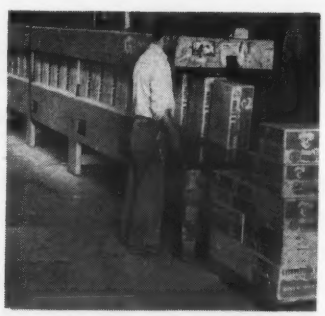
End-loading machine slides cans gently into cases without shock. Bottom of case is level on inside because of absence of the flaps, and cans ride evenly, without tipping during handling and transporting.

This feature is responsible for another end-loading case benefit: railroad damage is less, and claims are lower.

Results: Customer receives advantages of end-loading case, but with convenience of top-unloader when using Fair View's top Heart 'O Quality brand. Cost of added quick-open top feature is approximately $1 per 1000 — much less expensive than a tear-strip opener.



Top-open cases are run interchangeably with regular end loading cases on this non-shock end-loading caser



Flaps are glued and sealed on this end-flap sealer. No machine adjustment is required

Fibre-Zip top-opening, end-loading shipping case is product of Fibreboard Paper Products Co., 475 Brannan St., San Francisco 19, Calif.

7413 on Reader Service Slip.

FMC Model 20 Non-shock end-loading caser is product of Canning Machinery Div., Food Machinery and Chemical Co., P. O. Box 1120, San Jose, Calif.

7414 on Reader Service Slip.

Case sealer for end-load cases is product of Elliott Mfg. Co., 1735 Ventura Ave., Fresno 1, Calif.

7415 on Reader Service Slip.

plants, companies, personalities,

Marine Colloids, Inc.

has appointed Dr. Sidney D. Upham vice president and research director. With American Cyanamid Company for the past 20 yr, Dr. Upham had most recently been director of Product Research Laboratories of the company's Agricultural Division.

Topco Associates, Inc.

Chicago, distributing company owned by 27 major food chains for purposes of buying, quality controlling and merchandising a variety of food and non-food products, has appointed Harold J. Ratson quality research director. He had been new product manager with Joe Lowe Corp., and earlier project leader in General Foods' Central Research Laboratories.

Archer-Daniels-Midland Co.

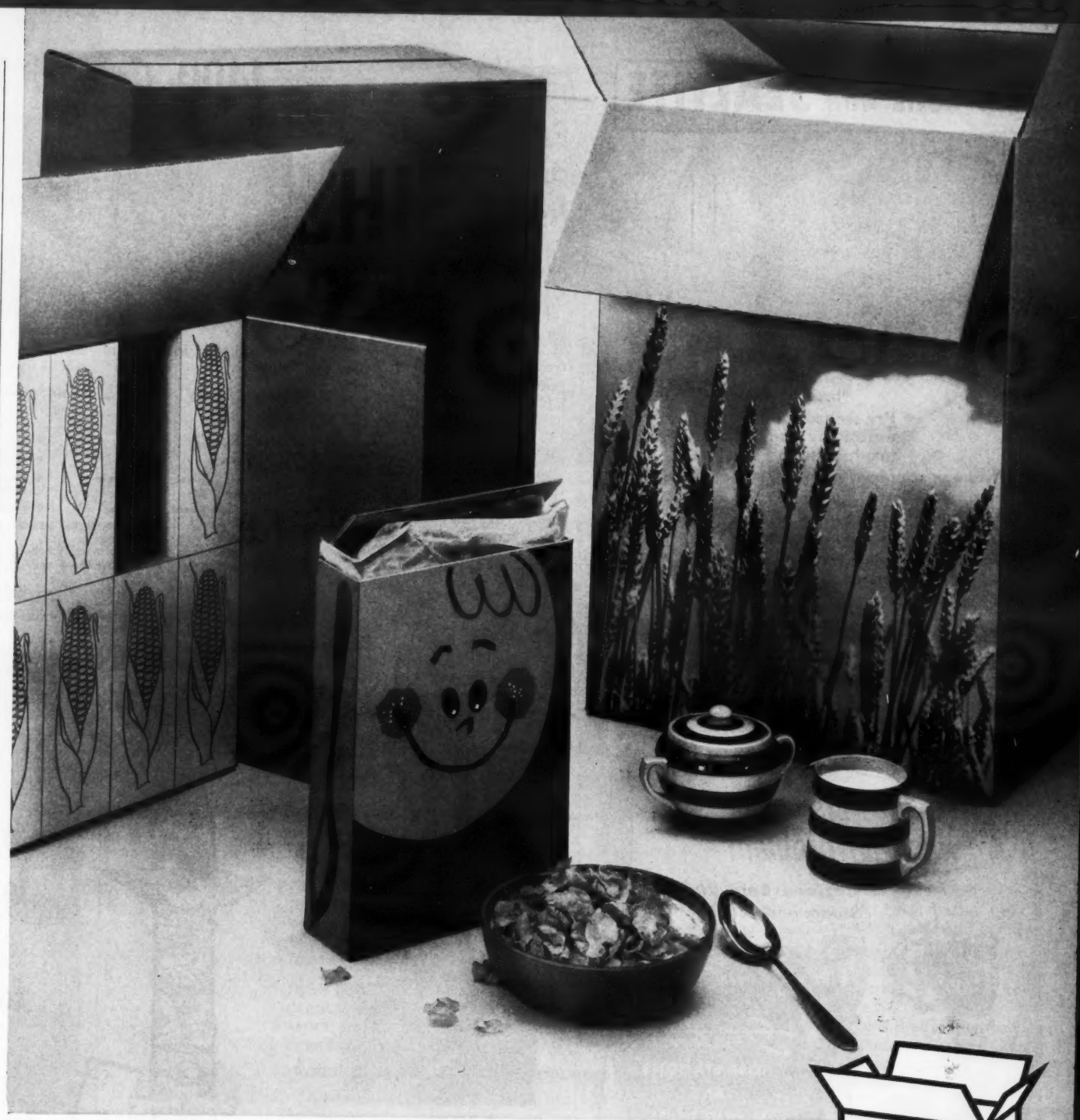
Minneapolis, has assigned new responsibilities to two of its agricultural group vice presidents. Carl C. Farrington was named to the newly created position of vice president of the agricultural group, under executive vice president E. A. Olsen. Ralph Bruce, manager of the oilseeds division, succeeds Farrington as manager of the company's grain operations, except on the Pacific Coast.

Unilac Inc.

Stamford, Conn., Western Hemisphere holding company of the worldwide Nestlé group, has purchased the assets of Cain's Coffee Co., Oklahoma City, Okla. Coffee has been of increasing importance to Nestlé since introduction of Nescafé in 1939.

National Pectin Products Co.

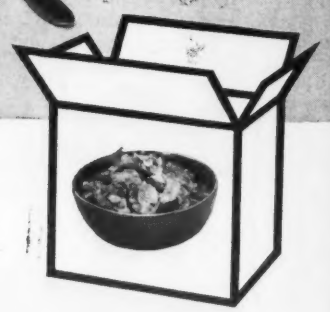
Chicago, a firm of manufacturing chemists nationally known in the ice cream field, announces appointment of Harold W. McGhee as manager of the company's newly created Pathfinder Division. A 30-yr veteran in the baking and food industry, McGhee will be responsible for diversifying National Pectin's activities into other fields through the new division.



Millions of breakfasts in corrugated

America's big morning appetite is a bull market for breakfast food. Producers supply this demand with a harvest of crispness, a multitude of different cereal brands. Why are so many of these family favorites shipped in boxes by Hinde & Dauch Division? Because buyers know they can depend on Hinde & Dauch for money-saving *corrugated containers in volume.*

7416 on Reader Service Slip.

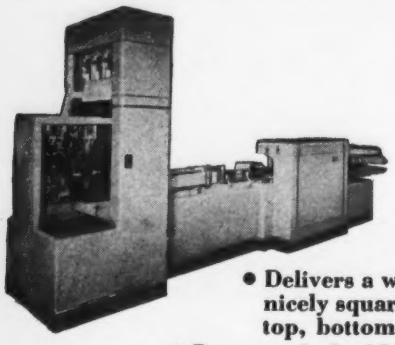


West Virginia Pulp and Paper

Hinde & Dauch Division

17 Plants • 42 Sales Offices • Sandusky, Ohio

Cut Costs with SEALTITE



- Delivers a well settled, nicely squared bag at top, bottom and sides
- Pre-scored, double fold, uniformly glued seal keeps product in and dirt out
- Uses any standard make of gusseted bag — no royalties
- Seal readily opened, yet tamper-proof
- Seals 30 to 50 bags per minute
- Users report costs reduced up to $500.00 per month per machine

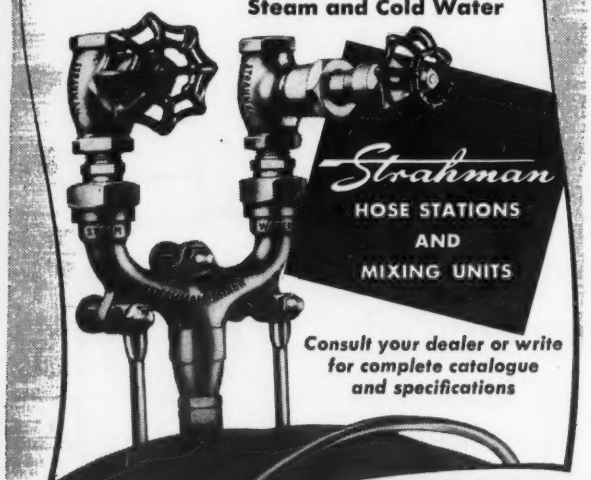
Write for complete information

CONSOLIDATED PACKAGING MACHINERY CORP.
A Subsidiary of International Paper Company
BUFFALO 13, N.Y.

7417 on Reader Service Slip.

Here's the answer to your wash-up problem—

Hot and Cold Water
Steam and Cold Water



Consult your dealer or write for complete catalogue and specifications

STRAHMAN VALVES, Inc. NICOLET AVE. FLORHAM PARK, NEW JERSEY

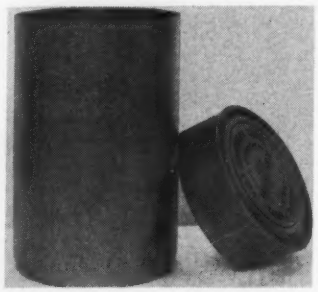
7418 on Reader Service Slip.

packaging

Paperboard drum for frozen foods

. . . saves processors 15% over metal pails

Uses: Originally developed for bulk shipment and storage of frozen products such as fruit puree, cut-up fruits, juice concentrates and vegetables, new Mead paperboard



Now made in a five-gal size, drum can be produced in any capacity from four to 16 gal

drum also is adaptable to such other fatty products as shortening and frozen eggs.

Features: As substitute for metal pails, the paperboard

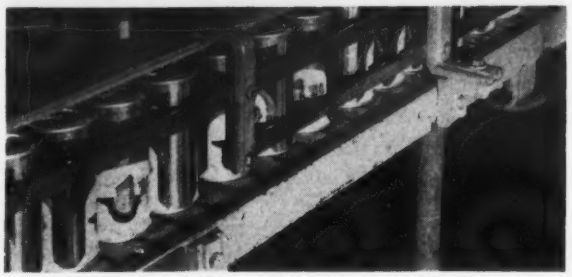
Drum's component parts are shipped to processor for assembly in his plant with machinery supplied by Mead — whereupon drums are filled, sealed and quick-frozen

drums offer these principal advantages:

shipped flat — they make unnecessary the conventional huge amount of storage space; required for pails;

one-trip use — eliminates expense of returning empty

1400 Cans a Minute



. . . on long lasting, non-lubricated Nylite "D" conveyor chain.

New "Delrin" conveyor chain now called Nylite "D" offers:

- no lubrication
- longer life
- lower original and maintenance costs
- lower coefficient of friction
- less noise
- more sanitary advantages
- equally good for plastic containers, bottles and cans.
- numerous safety factors
- higher speed

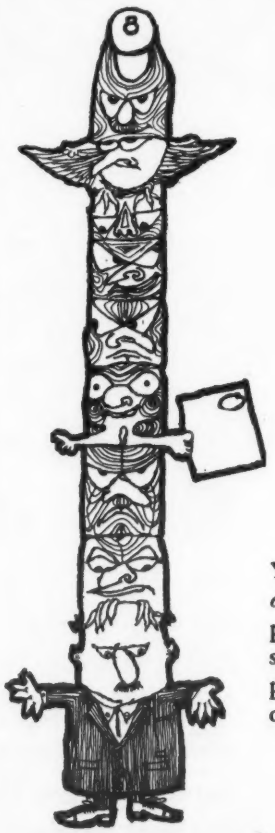
These advantages were proven through rigid comparative tests with metal chains for the past three years.

Now in stock: 3" — 3¼" — 4" — 4½" — 6" — 7½" widths

Write today for new pamphlet

FENCO, INC. | 125 N. Racine Ave. Chicago 7, Illinois

7419 on Reader Service Slip.



are you the low man on the totem-pole?

. . . always last to receive FOOD PROCESSING?

You needn't be. To get your *own* copy, addressed to you personally, fill out the subscription request form opposite this page. No charge, of course, if you qualify.

pails;

poly coating — inside and out, has excellent "release" properties, eliminates the polyethylene bag used to line some metal pails;

shock-absorbent — the paperboard drum is better able to resist dents than its metal predecessor.

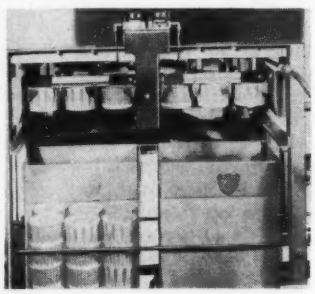
Supplier: The Mead Corporation, 3325 Madison St., Cincinnati, Ohio.

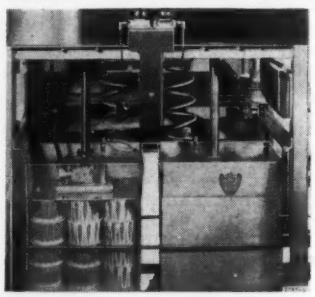
7420 on Reader Service Slip.

Cartons cups of cottage cheese fast

New Model 432 case packer was designed and built to load dairy products into cartons at speeds matching today's extremely fast cup-filling equipment.

Unit will simultaneously top-load two corrugated cartons with cottage cheese cups at rate of 140-150 cups per min.





In loading cycle shown, six 16-oz cottage-cheese cups are simultaneously loaded into each of two 24-cup cartons. Single-, double- or triple-layer cycles are possible in addition to the one shown

Supplier: Anderson Bros. Manufacturing Co., 1907 Kishwaukee St., Rockford, Ill.

7421 on Reader Service Slip.

THE FMC 18 VALVE FILLER

FILLS CANS OR JARS—from 202 to 404 diameter, with a minimum number of change parts. It will handle containers from 200 to 800 tall by simple vertical adjustment of filler bowl.

HIGH SPEEDS: up to 400 cpm depending on product and container size. Chain feed, worm timer and tangential take-off contribute to smooth, gentle handling.

HANDLES A WIDE RANGE OF PRODUCTS:

Liquids and juices: including tomato juice, peach and pear nectars, pineapple-grapefruit juice drink, pineapple juice.

Syruping: such as peaches, apricots, pears, fruit cocktail, figs, cherries.

Brining: adds brine to such products as spinach, diced carrots, green beans, peas, small potatoes, dry beans, pork and beans.

HIGH ACCURACY: extraordinary open-vent gravity-type valve design permits the valve's vent tubes to *drain completely* before cans leave the machine, providing greatest accuracy and uniformity of fill at high speeds. Can-lifts give positive, automatic "No Can, No Fill" operation, reducing the problems of spillage and waste. Head space is readily adjusted.

FULL AND COMPLETE DETAILS on this highly versatile FMC Filler will be furnished promptly by your FMC representative. Write or call today.

See the 18 Valve Filler at the National Canners Show, January 22-25 in Chicago — Booth No. 1.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
Canning Machinery Division
General Sales Offices:
WESTERN: SAN JOSE, CALIF. • EASTERN: HOOPESTON, ILL.

7422 on Reader Service Slip

Bear Down on FOAM

with Dow Corning Silicone Defoamers*

There's a *right* tool for every job. In foam control it's Dow Corning silicone antifoamers or defoamers . . . job-proved thousands of times over as the most efficient, most economical, and most versatile foam suppressors available.

*At prescribed levels, are sanctioned by FDA

FREE SAMPLE
and new manual on foam control

first in silicones
Dow Corning CORPORATION
MIDLAND, MICHIGAN

Dept. 3913a

Please rush a FREE SAMPLE of a Dow Corning silicone defoamer for my product or process, which is (indicate if food, aqueous, oil or other): _____

NAME _____

POSITION _____

COMPANY _____

ADDRESS _____

_____

7436 on Reader Service Slip.

technical literature Classified Listing

- **Equipment**
- **Ingredients**
- **Supplies**

Starred* items below have been more extensively reviewed elsewhere in the magazine. Key numbers in the last line will help to locate these reviews, which are numbered in sequence. Items followed by (†) indicate literature offered by advertisers—see Advertisers Index, page 103.

Processing Equipment, Accessories

Steam-water blenders operate on low and high pressure; hold temperatures within 3 degrees*, 8 pp, (Bul) Pick Manufacturing Co.
7365 on Reader Service Slip.

Fluid and gas pressure tanks in stainless and carbon steel†, (Cat) Groban Supply Co.
7437 on Reader Service Slip.

Stainless steel food containers have a seamless cupped bottom section, and are of crevice-free construction inside and out†, (Bul SS) Pressed Steel Tank Co.
7438 on Reader Service Slip.

Full line of 14 humidifiers to fit every need in any size area†, (Free booklet) The Bahnson Company
7439 on Reader Service Slip.

Fully automatic, no-frost refrigeration rooms†, (Bul No. 105) Niagara Blower
7440 on Reader Service Slip.

Combined roller mill, sifter and pneumatic system for processing variety of foods†, (3 Bulletins: Gyro-Whip sifter, Bul 135-B; Three-pair high roller mill, Bul 135-A; and pneumatic systems, Bul 18-G) Sprout-Waldron
7441 on Reader Service Slip.

Eliminates the destructiveness and costliness of conventional starting in the mechanical transmission of power†, (Tech Bul) Dodge Mfg.
7442 on Reader Service Slip.

Wide variety of propeller types for mixing available in stainless steel, bronze, aluminum and other alloys†, (Propeller Cat) Michigan Wheel Co.
7443 on Reader Service Slip.

Describes features and uses for filter press and leaf-type pressure filters†, (2 Bulletins: Filter Press Cat 59 and Leaf-type Pressure Filter Cat 150) T. Shriver & Company, Inc.
7444 on Reader Service Slip.

Silicone anti-foamers or defoamfor economical and versatile foam control†, (Free sample and manual) Dow Corning Corporation
7445 on Reader Service Slip.

Ingredients, Food Additives

Price catalog of essential oils and certified colors—published semiannually*, 36 pp, Dodge & Olcott
7330 on Reader Service Slip.

New guide to controlling foam*, 8 pp, (Reference 4-407) Dow Corning
7334 on Reader Service Slip.

Presents information about potassium sorbate and sorbic acid including information about its use as a preservative in various foods*, 29 pp, (Bul No. 101) Chas. Phizer & Co., Inc.
7338 on Reader Service Slip.

Describes nonionic surface active chemicals*, 4 pp, Hodag Chemical
7331 on Reader Service Slip.

Price catalog of flavors, colors, essential oils and citrus concentrates*, 12 pp, (Cat) Fritzsche Brothers, Inc.
7337 on Reader Service Slip.

Packaging, Labeling, Cartoning

Complete line of flexible packaging equipment†, (Cat) Bartelt Engineering Company, Inc.
7446 on Reader Service Slip.

Bulk Handling and Accessories

Describes and illustrates Permaglas, mechanized bulk storage systems*, 16 pp, (Bul MU-107) A. O. Smith Corp., Harvestore Products Div.
7377 on Reader Service Slip.

Conveyors, Racks, Accessories

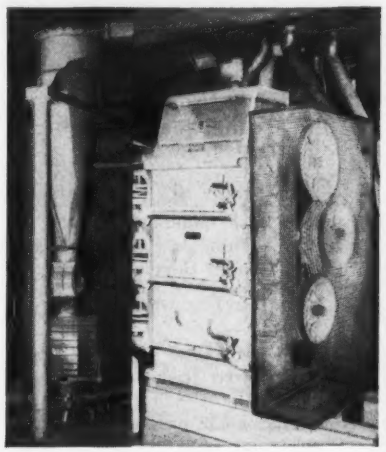
Comprehensive listing of roller conveyors, materials handling accessories*, 44 pp, (Cat GC-1) The Rapids-Standard Co., Inc.
7380 on Reader Service Slip.

Steel belt conveyors provide clean, efficient performance for numerous food applications†, (Conveyor Booklet No. E-738) Sandvik Steel, Inc.
7447 on Reader Service Slip.

Flat-top chain with dovetail design assures smooth pick-up, smooth ride for containers†, (Cat 1050) Link-Belt
7448 on Reader Service Slip.

Problem:

To process garlic chips with a minimum of labor



Solution:

SPROUT-WALDRON
ROLLER MILL, SIFTER, PNEU-VAC®

When a group of California business men decided to manufacture a line of dehydrated garlic and onion products with quality as their byword, they put their faith in a Sprout-Waldron processing system. The surge hopper over the roller mill is filled by a bucket elevator. As the garlic chips are reduced in the mill, they are picked up by a Pneu-Vac negative pressure system and discharged into a Gyro-Whip® sifter. The skins are scalped off and oversized material is recirculated through the mill.

The use of pneumatics keeps the operating area clean and pleasant while the system automatically produces the ground product at rates to 500 lbs. per hour.

For further information on the Sprout-Waldron stainless steel Gyro-Whip sifter, ask for Bulletin 135-B. Data on the three-pair high roller mill will be found in Bulletin 135-A. Complete details on Sprout-Waldron pneumatic systems are found in Bulletin 18-G.

CW/110

SPROUT-WALDRON
Muncy, Pennsylvania

Size Reduction • Size Classification • Mixing
Bulk Materials Handling • Pelleting

7449 on Reader Service Slip.

Shipping Containers, Palletizing

Describes wood and metal pallets, and their uses*, 16 pp, (Booklet) The Raymond Corporation
7399 on Reader Service Slip.

Data and design features on stretcher-sealers for application of flat steel strapping, 1 pp, A. J. Gerrard
7450 on Reader Service Slip.

Fork Trucks and Accessories

How to select the proper truck to enhance cost position within your plant*, 8 pp, fold-out brochure, ("Proper Truck Selection") Automatic Transportation Company
7400 on Reader Service Slip.

Compares propane and electric truck costs*, 16 pp, (Booklet) Exide Industrial Div., The Electric Storage Battery Co.
7385 on Reader Service Slip.

Fork truck operates within narrow confines of 6-foot aisles, enabling utilization of greater storage space†, (Booklet—Captures Lost Space) Towmotor
7451 on Reader Service Slip.

How today's industrial lift trucks are developed and tomorrow's are planned, 12 pp, Automatic Transportation
7452 on Reader Service Slip.

6000-lb capacity, dual-drive, pneumatic-tired electric lift truck, 4 pp, (Bul 6009-AR) Automatic Transportation
7453 on Reader Service Slip.

4000-lb capacity, single-drive, pneumatic-tired, electric lift truck, 4 pp, (Bul 6008-A-R) Automatic Transportation
7454 on Reader Service Slip.

Laboratory Developments

Solid-level control automatically resets for safe operation*, 2 pp, (Cat Sheet) Flo-tronics, Inc.
7370 on Reader Service Slip.

Control panels — automatic, remote, one-man control of multiple operation†, (Bul G-9) Fuller Company
7455 on Reader Service Slip.

Restores flow characteristics to dry, finely ground materials which tend to pack or bridge in storage, to keep them moving from bins, chutes, hoppers, etc†, (Detailed Literature) The Bin-Dicator Co.
7456 on Reader Service Slip.

Describes equipment for every and any counting need†, (Bul #200) Durant Mfg.
7457 on Reader Service Slip.

Sanitation

Provides latest information on materials for CIP operations†, (Bul F-94414) Oakite
7458 on Reader Service Slip.

Phosphoric acid-wetting agent sanitizer meets rigid tests for dairy use, 1 p, (B-K Sanitation Newsletter) Pennsalt Chemicals
7459 on Reader Service Slip.

"Flexible Shaft Handbook" aids in selection of flexible shafting*, 90 pp, S. S. White Industrial Division
7346 on Reader Service Slip.

Case history examples of machine lacing benefits†, (Bul 157) Clipper Belt Lacer Company
7460 on Reader Service Slip.

Automatic dust collector eliminates interruptions on production line and reduces maintenance†, (Free Literature) Torit Mfg. Co.
7461 on Reader Service Slip.

Steel packing tools aid removal and replacement of valve and bearing packings in hard-to-get-at places, (Brochure) Flexrock Company
7462 on Reader Service Slip.

Piping, Pumps, Valves, Accessories

Re-usable low pressure hose fittings*, 12 pp, (Bul) Lenz Company
7356 on Reader Service Slip.

Simplified guide for selecting stainless steel valves†, (Cat) Jenkins Bros.
7463 on Reader Service Slip.

Complete data on various types and capacities of spray nozzle designs†, 24 pp, (Bul) Spraying Systems Co.
7464 on Reader Service Slip.

Information about easy cleaning features of positive pumps†, (Cat FEP) Viking Pump Co.
7465 on Reader Service Slip.

Gives specifications of hose stations and mixing units†, (Cat) Strahman Valves, Inc.
7466 on Reader Service Slip.

Miscellaneous

Facts about casters and wheels featuring resistance to oils, waxes, most chemicals, and oxidation†, (Manual) Darnell Corporation
7467 on Reader Service Slip.

Heating elements to 33,000 GPM and hot water storage tanks, 8 pp, BH-(2N) The Sims Co.
7468 on Reader Service Slip.

Bibliography of papers resulting from brewing industry research institute sponsored, research, 4 pp, (Research Notes #3) Brewing Industry Research Inst.
7469 on Reader Service Slip.

CRCO* DOES IT AGAIN!
*SAY "SEE-AR-CO"

NEW CRCO ADJUSTABLE BAR TYPE BEAN GRADERS

Double The Capacity of Pocket Type Graders!

One Grader Adjusts to Grade All Sizes from #1 to #7

Cylinders Fit CRCO Pocket Type Frames in Field

- Available in single or double models
- "Flow Control" adjustable Feed Hopper
- Longer life with low maintenance
- Can be fitted to grade special sizes

Write for Detailed Bulletin.

THE BEST OF Everything

CHISHOLM-RYDER CO. INC.
Niagara Falls, New York
FOR THE FOOD PROCESSOR

7470 on Reader Service Slip.

a little cmc makes a big difference

Here's a topper—cherry, whipped toppings, sprinkles, ice cream—enough to make any young man's eyes pop. In whipped toppings, cellulose gum, Hercules purified CMC, is used as a stabilizer.

Hercules cellulose gum is finding ever-increasing uses in a variety of food products because of its purity, consistent quality control and dependable supply. If you are a food processor you probably know about CMC. If you want to know more, we'll be glad to send you complete technical information on your requirements and work with you on your specific formulation if you request. For further assistance, write:

Hercules Cellulose Gum

VC60-9

Virginia Cellulose Department
HERCULES POWDER COMPANY
INCORPORATED
Hercules Tower, 910 Market Street, Wilmington 99, Delaware

For more information on product at left, circle 7471 see information request blank opposite last page.

ADVERTISERS
in this issue

A

Ajinomoto Company of New York, Inc. 23
Allied Chemical Corporation, General Chemical Division 9
Amercoat Corporation 88
Ames Iron Works 62
Angelus Sanitary Can Machine Company 89
Atlas-Pacific Engineering Company, Inc. 91

B

Bahnson Company, The 60
Baker Chemical Co., J. T. 38
Bartelt Engineering Company, Inc. 90
Bauer Bros. 89
Bin-Dicator Co., The 80
Bliss Company, E. W. 85
Butler Manufacturing Company 57

C

Cambridge Wire Cloth Co., The 66
Centrico, Inc. 19
Cherry-Burrell Corporation 20-21
Chisholm-Ryder Co., Inc. 101
Clark Door Company, Inc. 61
Clipper Belt Lacer Co. 10
Clupak, Inc. 93
Consolidated Packaging Machinery Corp., A Subsidiary of International Paper Company 98

D

Darnell Corp., Ltd. 88
Detecto Scales, Inc. 80
Distillation Products Industries division of Eastman Kodak Company 55
Diversey Corporation, The 4
Dodge Manufacturing Corporation 70
Dorr-Oliver Incorporated 17
Dow Corning Corp. 22, 100
Durant Manufacturing Co. 80

E

Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company 40
Edmont, Inc. 59
Eriez Manufacturing Co. 13
Exact Weight Scale Co., The 94

F

Fameus Lubricants Inc. 59
Felton Chemical Company, Inc. 6
Fenco, Inc. 98
Firmenich, Incorporated 3rd cover
Flavorex Co., Inc. 40
Florasynth Laboratories, Inc. 18
Food Machinery and Chemical Corporation, Canning Machinery Division 99
Ford Motor Company, Ford Division 86-87
Foxboro Company, The 36
Fuller Company, Subsidiary of General American Transportation Corporation 68

G

General Chemical Division, Allied Chemical 9
Girdler Process Equipment Division, Chemetron Corporation 77
Givaudan Flavors, Inc. 52
Groban Supply Co. 80

H

Hayssen Manufacturing Company 92
Hercules Powder Company, Virginia Cellulose Department 102
Hinde & Dauch Division, West Virginia Pulp and Paper 97
Hoerner Boxes, Inc. 95

I

Industrial Instruments Engineering Corp. 92
International Flavors & Fragrances Inc., Flavor Division 4th cover

J

Jenkins Bros. 73
Johns-Manville 65

ADVERTISING REPRESENTATION

CHARLES H. OESTMANN — *Vice President-Sales*

Chicago 11, 111 East Delaware Place, WHitehall 4-6141, Leo L. Smith, Western Advertising Director; William B. Bowen, District Manager; Frank D. Linthicum, District Manager; R. Dewey Humason, District Manager

Los Angeles 57, Granada Building, 672 So. La Fayette Park Place, DUnkirk 8-2286, Wettstein, Nowell & Johnson, Inc., Bob Wettstein, Jerry Holtz

New York 17, 369 Lexington Avenue, MUrray Hill 6-7738, John A. Mulheren, Eastern Advertising Director; Herman Faiola, District Manager; Raymond V. Morrow, District Manager, Quentin Orza

Portland 5, 337 Pittock Block, 921 S.W. Washington Street, CApital 8-4107, Wettstein, Nowell & Johnson, Inc.

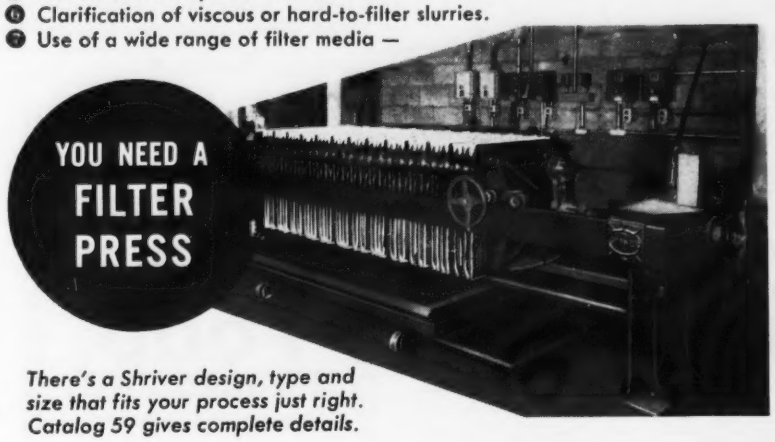
San Francisco 5, 417 Market St., YUkon 2-9537, Wettstein, Nowell & Johnson, Inc., Jerry Nowell, Gene R. Watts

Southwestern States, 1310 Hawthorne, P. O. Box 66393, Houston 6, Texas, JAckson 9-1431, The Media Company, Calvin Clausel

Southeastern States, 40 Peachtree Place, N.W., Atlanta 9, Ga., TRinity 2-2235, Joe Howell

WHEN YOU REQUIRE FILTRATION

1. That is versatile and flexible in operation,
2. Over a wide range of pressures,
3. For recovery of filtrate and of uniform, dense filter cake,
4. With effective washing or extraction of cake.
5. No left-over slurry at end of run.
6. Clarification of viscous or hard-to-filter slurries.
7. Use of a wide range of filter media —



There's a Shriver design, type and size that fits your process just right. Catalog 59 gives complete details.

WHEN YOU REQUIRE FILTRATION

1. Of slurries with a low percentage of compressible and disposable solids or
2. Of slurries with up to 15 percent of solids, with either or both filtrate and solids to be recovered.
3. Where continuous filter aid additions are required to maintain a permeable filter cake.
4. Where residual solids may be reslurried with water for disposal.
5. Where an enclosed tank is needed to avoid leakage.
6. With one-man operation for sluicing, cleaning and preparation for the next cycle —

The Shriver vertical leaf filter is available in vertical tank and horizontal tank types, in a wide range of leaf and tank sizes. New Bulletin 150 tells the story.

FILTERS AND COMPLETE FILTER STATIONS TO MEET YOUR EXACT PROCESSING NEEDS

T. Shriver & Company, Inc.

892 HAMILTON STREET • HARRISON, N. J.

Sales offices in principal cities

7472 on Reader Service Slip.

CLASSIFIED SECTION

FOOD PROCESSING

PROFESSIONAL & TECHNICAL SERVICES

LABORATORY SERVICES
for the FOOD, FEED, DRUG and CHEMICAL INDUSTRIES
Analyses, Biological Evaluation, Toxicity Studies, Insecticide Testing and Screening, Flavor Evaluation.
Project Research and Consultation
Write for Price Schedule
P. O. Box 2217 • Madison 1, Wis.
WISCONSIN ALUMNI RESEARCH FOUNDATION

ENGINEERING REPORTS
DESIGN
CONSTRUCTION MANAGEMENT

CHAS. T. MAIN, INC.
Consulting Engineers
•
BOSTON, MASSACHUSETTS · CHARLOTTE, N. CAROLINA

SEND FOR **Free Data**
ON RESEARCH
- ☐ FOOD FACTS * a newsletter
- ☐ Food Technology
- ☐ Pharmacology for your Business
- ☐ Food Additives — New Controls

Foster D. Snell, inc.
CONSULTING CHEMISTS • CHEMICAL ENGINEERS
29 West 15th Street, New York 11, New York
WAtkins 4-8800
Direct Dialing Area 212
Baltimore, Md.
Bainbridge, N. Y.
MEMBER AMERICAN COUNCIL OF INDEPENDENT LABORATORIES

Available! Superb
AIR CONDITIONED
72,700 SQ. FT.
Modern Plant Ideal for
FOOD PROCESSING
★ 28,500 sq. ft. floors
★ Offstreet parking
★ Undercover loading
PHILADELPHIA, PA.
BINSWANGER
1420 Walnut St., Phila. 2, Pa. • PE 5-0202

ECONOMICAL EQUIPMENT
READY for IMMEDIATE USE

Stainless Kettles, Tanks, Vacuum Pans, Stills, Reactors, Colloid Mills, Homogenizers, Viscolizers, Comminutators, and Mixers.
Abbe, Ball & Jewell Rot, Cutters.
Fillers for Liquids, Pastes, Powders, Crystals, Semi-Liquids, all types.
Cappers, Labelers, Casers, Sealers, Packaging Equipment.
Dryers, Crystallizers, Evaporators.

Send for Complete List

FIRST MACHINERY CORP.
209-289 Tenth St., Bklyn. 15, N. Y.
Phone ST. 8-4672—Cable "Effemcy".

EQUIPMENT & MATERIALS

WANTED:
Fitzpatrick Comminuting Machine. Model DKAS 12 or M44D6 with Code 575 Rotor and 15 or 20 HP Motor.
PACIFIC PRESERVING CO.
16911 South Normandie Avenue
Gardena, California

EMPLOYMENT & OPPORTUNITIES

SENIOR RESEARCH TECHNOLOGIST M.S., Cereal Chem Major Food Tech or Chem Minor, Greenville, Illinois Research Center. Acquaintance with Physical and Chemical Methodology of evaluating Cereal Products required and Product Development in Cereal Field and Bakery Technology desirable. Salary: Open. Age 23 to 35 **PET MILK COMPANY,** R. A. Webb, 1401 Arcade Bldg., St. Louis 1, Mo.

STAINLESS STEEL TANK TRUCK equipment
available for liquid transportation

Specialists in handling food products in bulk.

ICC authority in 34 states.

Realistic rates submitted on request.

Reply to: CL 122, FOOD PROCESSING, 111 E. Delaware Place, Chicago 11, Ill.

RESEARCH KITCHEN
PRODUCT DEVELOPMENT

Leading national supplier of basic ingredients to the Food industry has excellent opportunity in its Research and Product Development kitchen. The company is located in Chicago. The applicant should have 10 years experience in meat processing including curing, smoking, sausage manufacturing, and related meat areas. Should have enough supervisory and organizing experience to direct Research and Development activities. Should be creative and research minded. Excellent salary for the man with the proper qualifications. Reply in detail stating experience and salary required.
Reply to CL 122 FOOD PROCESSING
111 E. Delaware Pl., Chicago 11, Ill.

FOOD MEN

Client Food processors have listed with us the following openings.

PROD'N SUPT. (Multi-plant) $18,000
RESEARCH DIR. (PhD) $20,000
PROD'N MGR. (fruit packer) $15,000
FOOD TECHS (for QC & Rsch) $8-$12,000
PHD in Physical Chem. $12,000
PLANT ENGRS. (ME, ChemE) ..$8-$12,000
RECENT GRADS .....$6,000 Up

These are but a few of the hundreds of positions available in the food field thru Cadillac — the nation's largest executive and professional placement service.

Our service is **absolutely confidential** and **completely free of charge.**

John Spaulding
Food Industry Division
CADILLAC ASSOCIATES, INC.
29 East Madison Bldg. Chicago 2, Illinois
• Financial 6-9400

European firm wants expert as adviser for the production of chewing gums, experienced in manufacture of gum base and in technical production

Reply to CL 121 Food Processing
111 E. Delaware Pl., Chicago 11, Ill.

K

Kelco Company 50

L

Ladish Co., Tri-Clover Division 43
La Porte Mat & Mfg. Co. 78
Link-Belt Company 81

M

Mallinckrodt Chemical Works 15-16
Marley Company, The 72
Meyer Machine Company 82
Michigan Wheel Co. 18
Minneapolis-Honeywell 12
Mojonnier Bros. Co. 64
Monarch Mfg. Works, Inc. 63

N

National Aniline Division, Allied Chemical Corporation 67

O

Oakite Products, Inc. 56

P

Pacific Vegetable Oil Corp. 14
Pfaudler Permutit Inc., Pfaudler Div. 11
Pfizer & Co., Inc., Chas., Chemical Sales Division 51
Platecoil Division, Tranter Manufacturing, Inc. 18
Precision Valve Corporation 76
Pressed Steel Tank Company 23
Pulverizing Machinery Company, A Division of American-Marietta Company 8
Putman Publishing Company 23, 54, 82, 98

R

Refined Syrups & Sugars, Inc. 53
Rietz Manufacturing Co. 71
Ritter & Co., F. 3
Rohm & Haas Company 44

S

Sandvik Steel, Inc., Steel Belt Conveyor Department 7
Shriver & Company, Inc., T. 103
Shulton Fine Chemicals Division of Shulton, Inc. 26
Speas Company 14
Spraying Systems Co. 64
Sprout-Waldron 100
Staley Mfg. Co., A. E. 35
Standard Conveyor Company 83
Strahman Valves, Inc. 98
Sturtevant Mill Co. 96
Sunkist Growers Products Sales Dept. 48-49
Syntron Company 84

T

Taylor Instrument Companies 74-75
Torit Manufacturing Company, Automatic Collector Division 63
Towmotor Corporation 79
Tranter Manufacturing, Inc., Platecoil Division 18

U

Urschel Laboratories, Inc. 58

V

Vico Products Company 38
Viking Pump Company 60

W

Waukesha Foundry Company 69
Wear-Ever Aluminum, Inc., Food Service Equipment Division 24-25
Western Condensing Company .... 2nd cover
Wilson Rubber Co., The, Industrial Division, A Division of Becton, Dickinson and Company 42

NO ENVELOPE NECESSARY — FOLD, SEAL, MAIL — POSTAGE PAID

If you want more information on ingredients, processes, controls or developments discussed herein, as you read this issue, ask our READER SERVICE DEPT. . . . use this sheet

JANUARY 1961

READER SERVICE SLIP

As you read editorial articles and advertisements which interest you, on which you'd like more information . . . note key number under each and circle this number below. Then fill in your name, title, company, main product and address at the bottom of this sheet and mail . . . no postage, no envelope necessary. Information will come to you direct, without obligation.

Expiration date for these numbers is April 10, 1961.

7271	7306*	7341	7376	7411	7446
7272	7307	7342	7377	7412	7447
7273	7308	7343	7378	7413	7448
7274	7309	7344	7379	7414	7449*
7275	7310	7345	7380	7415	7450
7276	7311	7346	7381	7416	7451
7277	7312	7347	7382	7417	7452
7278	7313	7348	7383	7418	7453
7279	7314	7349	7384	7419	7454
7280	7315	7350	7385	7420	7455
7281	7316	7351	7386	7421	7456
7282	7317	7352	7387	7422	7457
7283	7318	7353	7388	7423	7458
7284	7319	7354	7389	7424	7459
7285	7320	7355	7390	7425	7460
7286	7321*	7356	7391	7426	7461
7287	7322	7357	7392	7427	7462
7288	7323	7358	7393	7428	7463
7289	7324	7359	7394	7429	7464
7290	7325	7360*	7395	7430	7465
7291	7326	7361	7396	7431	7466
7292	7327	7362	7397	7432	7467
7293	7328	7363	7398	7433	7468
7294	7329	7364	7399	7434	7469
7295	7330	7365	7400	7435	7470
7296	7331	7366	7401	7436	7471
7297	7332	7367	7402	7437	7472*
7298*	7333	7368	7403	7438	7473*
7299	7334	7369	7404	7439	7474
7300	7335	7370	7405	7440	7475
7301	7336	7371	7406	7441*	
7302	7337	7372	7407	7442	
7303	7338	7373	7408*	7443	
7304	7339	7374	7409	7444*	
7305	7340	7375	7410	7445	

*Since there are several items covered by this number, please list this number with the specific item on which you want additional information in the "Multiple Listings" column at right

FOOD PROCESSING Handbook Suggestion: .....

Multiple Listings

for items with*

Key No.	Description

☐ My favorite FOOD PROCESSING cartoon, nominated for "FP Cartoon Hall of Fame", is:

_____

_____

Please type or print and be sure to give your title and main product of Company

Name ..... Title .....

Company ..... Main Product .....

Street Address of Company .....

City ..... Zone No. ..... State .....

NO STAMP – NO ENVELOPE NECESSARY

Just FOLD, SEAL and MAIL

Be Sure to Sign Your Name . . . See Other Side

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY MAIL
First Class Permit No. 30692 Chicago, Ill.

Postage Will be Paid by Addressee

FOOD PROCESSING

PUTMAN PUBLISHING COMPANY

111 EAST DELAWARE PLACE

CHICAGO 11, ILLINOIS

This is a Service for Readers
– No Obligation

Change of Address • Subscription Request Form

(PLEASE TURN PAGE)

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY MAIL
First Class Permit No. 30692 Chicago, Ill.

FOOD PROCESSING

PUTMAN PUBLISHING COMPANY

111 EAST DELAWARE PLACE

CHICAGO 11, ILLINOIS

Seal Here

NO STAMP – NO ENVELOPE NECESSARY

Just FOLD, STAPLE and MAIL

Be Sure to Sign Your Name . . . See Other Side

This is a Service for Readers
– No Obligation

FOLD THIS SIDE *IN* FIRST

NO ENVELOPE NECESSARY — FOLD, STAPLE, MAIL — Postage Paid

Special subscription request-qualification form for use by

Management and technical men who wish to receive FOOD PROCESSING without charge . . . fill in form below

If you are responsible for processing operations, in a management or technical capacity, as corporate officer, manager, plant superintendent, food technologist, chemical engineer, chemist, engineer, or equivalent responsibility . . . in a plant of substantial operations* where food processing is an important factor . . . FOOD PROCESSING will be sent to you without charge or obligation . . . if you request it. Use form below.

NEW READER . . . If you qualify as outlined above, FOOD PROCESSING will be sent to you without cost or obligation. In requesting, be sure to answer all questions. If your firm is not rated or listed in standard references, indicate size of the company by capital rating or number of employees. Unless all information is given, magazine will not be sent.

Please print or type.

Name _____ Title _____

Company _____

Main Product _____

No. of Employees or Capital Rating _____

Street Address of Company _____

City _____ Zone No. _____ State _____

CHANGE OF ADDRESS . . . Use this form to notify us of a change in address. Please answer all questions in regard to your new affiliation, and in addition give us your former address including company, city and state.

Please print or type.

Former Company Affiliation _____ Former Address _____

Your Name _____ Present Title _____

Present Company _____ Main Product _____

No. of Employees or Capital Rating _____

Street Address of Company _____

City _____ Zone No. _____ State _____

* "substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must set standards to insure publication being sent where it can be used to best advantage.

AND NOW— IMITATION LEMON JUICE FLAVOR FOR ANY PRODUCT

A new Imitation Lemon Juice flavor now imparts the full-bodied taste of freshly pressed lemon juice to your products, *unimpaired,* regardless of the processing involved.

This unique synthesis of ingredients combines the characteristics of pure natural juice with the uniformity of laboratory products to perfect another precise and potent Firmenich flavor.

Expect neither the usual whole lemon or buffered taste, nor overtones of peel oil. This Firmenich Imitation Lemon Juice flavor is unusually stable. All impurities have been identified and isolated by Firmenich's flavor technologists, then removed or obviated.

You receive only the faithful juice flavor of hearty tree-ripened lemons, in batch after batch of such products as:

Pastries
Fillies
Puddings
Gelatin Desserts
Icing
Sherbets
Fondant
Carbonated Beverages
Ice Cream
Nectar
Hard Candy
Pie Filling
Soft Drink Powders

Available in both powder and liquid. Let us know your testing requirements and suitable quantities will be sent you of either the liquid or powdered Imitation Lemon Juice flavor.

FIRMENICH INCORPORATED

FIRMENICH & CIE
SUCCESSEURS DE
CHUIT NAEF & CIE
GENEVE SUISSE

IMITATION RASPBERRY BY FIRMENICH

You get the direct and authentic reproduction of raspberries in their full perfection in Raspberry Flavor by Firmenich. For Firmenich took fully ripe raspberries, freshly severed from the stem, captured their delicate and fugitive flavor, and by original research reconstructed it with all its significant and desirable components. Firmenich Raspberry comes to you as a precise and potent flavor material of the utmost purity and stability to enhance the flavor of your products and to give them greater sales appeal. Samples and technical data on request.

7473 on Reader Service Slip.

FIRMENICH INCORPORATED

FIRMENICH & CIE
SUCCESSEURS DE
CHUIT NAEF & CIE
GENEVE SUISSE

250 WEST 18TH STREET, NEW YORK 11, N. Y.
CHICAGO: 612 NORTH MICHIGAN AVENUE
LOS ANGELES: 1416 CRESTVIEW COURT
FIRMENICH OF CANADA, LIMITED,
350 WALLACE AVENUE, TORONTO, ONT.
2323 GRAND BLVD., MONTREAL, QUE.
GENEVA • PARIS • LONDON

Why? Because quality flavors make quantity sales.

If you have a flavor problem, we can help you. Experienced flavor chemists at IFF can create a flavor exclusively yours . . . suggest ideas for new products . . . improve flavor stability and shelf-life. If yours is an established product, IFF flavors can add new zest for renewed sales impact.

And if you are in the international market, IFF can minimize problems of supply. Uniform manufacturing and quality control in all of its plants throughout the world assure customers that IFF flavors, wherever ordered, remain the same from batch to batch.

For the flavor that's sales-perfect for your product, contact IFF.

iff

FLAVOR DIVISION

INTERNATIONAL FLAVORS & FRAGRANCES INC.

417 Rosehill Place, Elizabeth 2, N. J.

Leading Creators and Manufacturers in the World of Flavor

ARGENTINA AUSTRIA BELGIUM BRAZIL CANADA ENGLAND FRANCE GERMANY HOLLAND INDONESIA ITALY NORWAY SOUTH AFRICA SWEDEN SWITZERLAND U.S.A.

7474 on Reader Service Slip

FOOD PROCESSI

. . . published by . . .
Putman Publishing Co

CREATORS OF
READER ACT
MAGAZINES

. . . featuring all the essential elements:

- TERSE VITAL EDITORI
- HAND-PICKED CIRCULATION
- "EXECUTIVE" FORMA
- HIGH VISIBILITY
- QUALITY READERSHIP
- MORE READER ACTIO